REPORT

of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR
1951-1952

G. W. PRACY
GENERAL MANAGER AND CHIEF ENGINEER

REPORT

of the

SAN FRANCISCO WATER DEPARTMENT

FISCAL YEAR
1951-1952

G. W. PRACY
GENERAL MANAGER AND CHIEF ENGINEER

Digitized by the Internet Archive
in 2014

https://archive.org/details/reportofsanfranc1951sanf

SUTRO RESERVOIR

SAN FRANCISCO WATER DEPARTMENT

G. W. PRACY

General Manager and Chief Engineer

On May 26, 1952 Bay Division Pipe Line No. 3 was completed. Twenty-six years ago Bay Division Pipe Line No. 1 was put into service on a rental basis by Spring Valley Water Company and sixteen years ago water was first transported through Bay Division Pipe Line No. 2 by this Department. These three pipe lines are used to transport Hetch Hetchy and Alameda sources water from Irvington Portal to Crystal Springs Reservoir and intervening consumers. They have a peak capacity of 180 million gallons per day which quantity, at the average rate of consumption increase since 1885, will be less than consumption in 1965 and the fourth transmission line will be required.

An appraisal of the Water Department's property was completed this year showing a total capital investment, as of June 30, 1948, of $74,493,750.79 with an accrued depreciation of $27,873,775.54 leaving a depreciated value of $46,619,975.25. The appraisal was made in accordance with Section 128 of the Charter of the City and County of San Francisco which requires this be done at least every five years.

During the next six years consumption increase equal to the average rate of increase during the past 67 years will require capital investment of $20,000,000.00 for additional capacity and capital investment of $11,000,000.00 for replacements of present facilities or a total of $31,000,000.00. Water sales at present water rates during the six year period is estimated to provide $11,000,000.00 which could be applied to this capital investment leaving a balance of $20,000,000.00 that must come from bond funds. To insure facilities for meeting this average consumption increase the bond funds must be available not later than the 1953-54 fiscal year. Improvement of the quality of water served in San Francisco would require filtration plants which are estimated to cost $10,000,000.00 not included in above totals and would require some six years to design and construct.

At the beginning of this fiscal year the Federal Government through the National Production Authority tightened their restrictions on the use of controlled materials - steel, copper and aluminum. This Department was given authority to construct and allocated all materials as requested, however, the regulations somewhat complicated our contract scheduling and procedure. These restrictions were relaxed during the year but due to the steel strike were again tightened up considerably by June 30, 1952.

The site for Balboa Reservoir is not available at this time and the start of construction of this badly needed facility is again delayed. In order to avoid rehandling excavation it is planned that the earthwork for both the north and south basins will be done at the same time beginning in July 1954.

The annual report of this year follows the same general outline of previous years in order to give continuity of record and to provide ready reference comparison of operating results from year to year. Following this foreword, a more detailed description is provided of the Department's operations during the year ending June 30, 1952, which in turn is followed with an appendix and a list of Organization and Personnel.

Rainfall for the second consecutive year has been above normal with consequent large runoff from watershed areas. Due to the increased runoff in local areas, the surface storage in local reservoirs was greater at the close than at the beginning of the fiscal year. However, it was necessary to draw the maximum quantity possible from Hetch Hetchy during the year. Withdrawals reduced Calaveras Reservoir storage to 22.4 billion gallons on November 18, 1951 and the Peninsula Reservoirs were reduced at that time to 21.1 billion gallons. Subsequent runoff refilled these reservoirs but it is probable that Calaveras storage will be at a low point of 20 billion gallons and that Peninsula storage will be reduced 18 billion gallons by Christmas 1952, which date is normal time for start of runoff.

Water consumption for the entire system during the year ending June 30, 1952, averaged 109.1 million gallons daily, an increase of 3.3 million gallons daily over the preceding year. Of this total, 82.9 million gallons daily were used in the San Francisco consumption area and the balance of 26.2 million gallons daily was used in the suburban consumption area.

The peak 24 hour demand on the system, occurring on June 16, 1952, was 154.0 million gallons, as compared to the previous all time peak of 147.7 million gallons on June 1, 1951.

The low 24 hour demand on the system, occurring on December 25, 1951, was 77.6 million gallons as compared to a low of 77.3 million gallons on December 25, 1950.

The month of June, 1952 had the highest daily average demand of any month during the year averaging 130.8 million gallons per day as compared to an average 126.1 million gallons per day in June 1951.

Water sales for the year, including municipal non-pay accounts, amounted to $11,982,213 an increase of $579,469, or 5.1 per cent over the previous year. Accounts within the city limits increased by $129,052.00, making a total net sales within the City of $9,465,234.00 or 79. per cent of the depart-

ment's total sales. Suburban net sales increased $450,417.00, making a total suburban sales of $2,516,979.00, or 21 per cent of the department's total net sales.

The number of active consumer accounts increased from 147,081 on June 30, 1951, to 148,726 on June 30, 1952, a gain of 1,645.

Accounts determined to be uncollectable totaled $3,596 an increase of $477 over the preceding year. This resulted primarily from the larger amounts on closing bills due to bi-monthly billing.

On June 30, 1952, the total number of water meters in service was 152,179, an increase of 1 302 during the year. (Metering of the entire system was completed in 1918.)

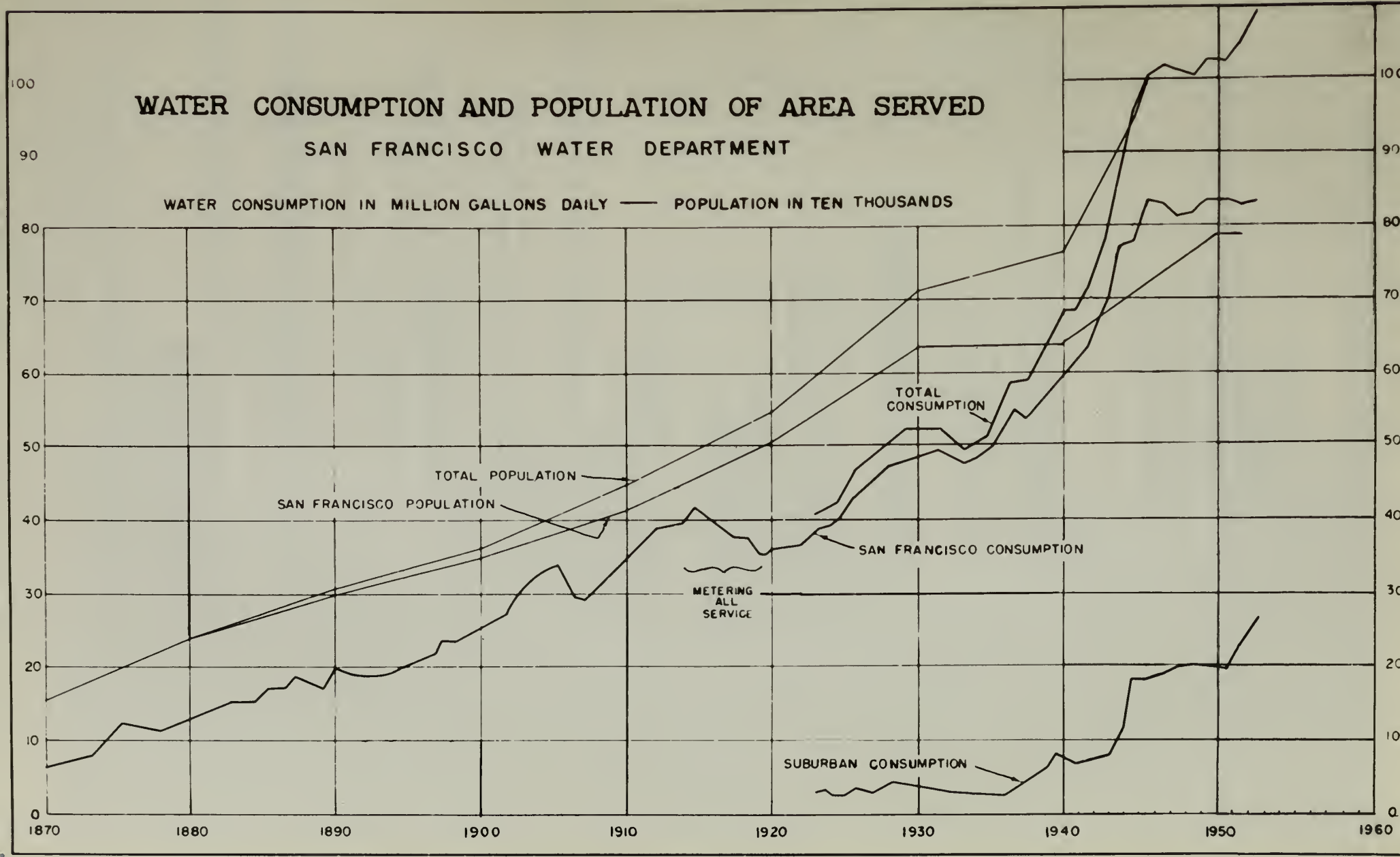
Personnel employments amounted to a total of 531 on June 30, 1952, including 58 temporary employments.

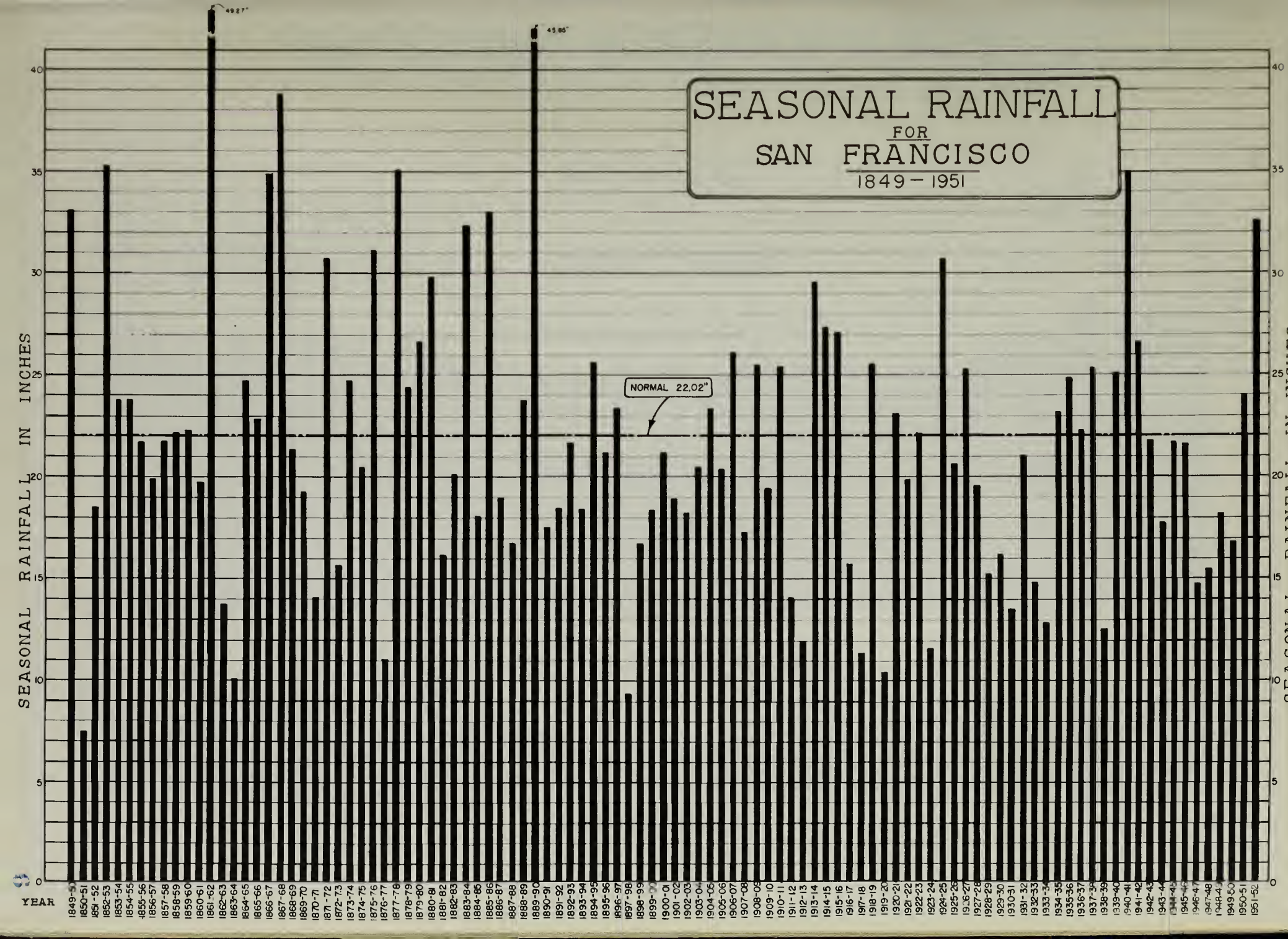
During the year 32 acres of land were sold and 7 acres were purchased, making a net decrease of 25 acres during the past year and resulting in a total of 63,281 acres being held under the Department's jurisdiction.

Chemical treatment of all water supplies has been continuous and all consumers received water that was in full compliance with State and Federal standards for potability.

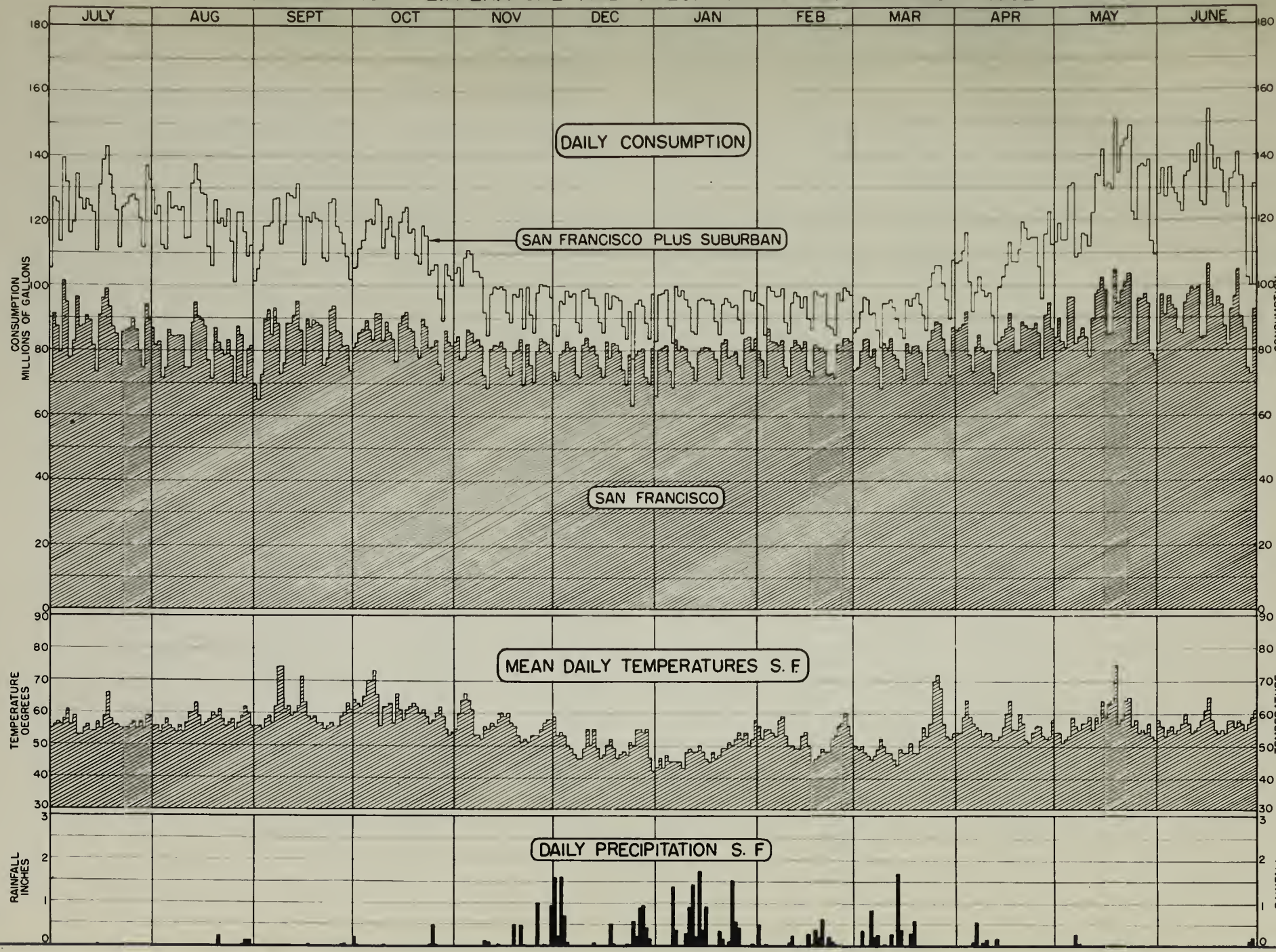
During the fiscal year the department prepared 45 contracts for construction work and for furnishing of equipment, totaling in amount to over $3,000,000.

This foreword would not be complete without expressing a sincere appreciation to our personnel for their loyalty and cooperative efforts in maintaining and improving the efficiency of the department.


WATER CONSUMPTION AND POPULATION OF AREA SERVED
SAN FRANCISCO WATER DEPARTMENT
WATER CONSUMPTION IN MILLION GALLONS DAILY —— POPULATION IN TEN THOUSANDS
100
90
80
70
60
50
40
30
20
10
0
1870
1880
1890
1900
1910
1920
1930
1940
1950
1960
TOTAL CONSUMPTION
TOTAL POPULATION
SAN FRANCISCO POPULATION
SAN FRANCISCO CONSUMPTION
METERING ALL SERVICE
SUBURBAN CONSUMPTION


SEASONAL RAINFALL
FOR
SAN FRANCISCO
1849 – 1951
NORMAL 22.02"
49.27"
43.80"
SEASONAL RAINFALL IN INCHES
YEAR
0
5
10
15
20
25
30
35
40
1849-50
1850-51
1851-52
1852-53
1853-54
1854-55
1855-56
1856-57
1857-58
1858-59
1859-60
1860-61
1861-62
1862-63
1863-64
1864-65
1865-66
1866-67
1867-68
1868-69
1869-70
1870-71
1871-72
1872-73
1873-74
1874-75
1875-76
1876-77
1877-78
1878-79
1879-80
1880-81
1881-82
1882-83
1883-84
1884-85
1885-86
1886-87
1887-88
1888-89
1889-90
1890-91
1891-92
1892-93
1893-94
1894-95
1895-96
1896-97
1897-98
1898-99
1899-00
1900-01
1901-02
1902-03
1903-04
1904-05
1905-06
1906-07
1907-08
1908-09
1909-10
1910-11
1911-12
1912-13
1913-14
1914-15
1915-16
1916-17
1917-18
1918-19
1919-20
1920-21
1921-22
1922-23
1923-24
1924-25
1925-26
1926-27
1927-28
1928-29
1929-30
1930-31
1931-32
1932-33
1933-34
1934-35
1935-36
1936-37
1937-38
1938-39
1939-40
1940-41
1941-42
1942-43
1943-44
1944-45
1945-46
1946-47
1947-48
1948-49
1949-50
1950-51
1951-52

CONSUMPTION TEMPERATURE AND PRECIPITATION RECORDS 1951—1952



WATER PRODUCTION

GENERAL OPERATIONS:

The total amount of water used during the year, amounted to 39,946 million gallons, averaging 109.1 million gallons per day. This water was supplied from the following sources:

Local Production	18,274 million gallons
Hetch Hetchy Sources	21,672 million gallons
Total	39,946 million gallons

Delivery from Hetch Hetchy sources averaged 59.2 million gallons daily and maximum possible delivery was continued throughout the year excepting during necessary shutdowns.

Approximately 99.6 per cent of the Hetch Hetchy water delivery was brought to the westerly side of the bay, the remainder being diverted into the Alameda System. The total delivery from Hetch Hetchy since completion of the aqueduct on October 18, 1934, now amounts to 263,857 million gallons or an average of 40.8 million gallons daily.

The draft on water resources to meet consumption requirements for the year averaged 109.1 million gallons daily , an increase of 3.3 million gallons daily over the preceding year. Consumption in San Francisco consumption area was 82.9 million gallons per day and in suburban consumption areas was 26.2 million gallons per day.

The 24 hour peak consumption for the entire system was 154.0 million gallons, occurring on June 16, 1952 and the month of June, 1952 had the highest daily average of any month during the year averaging 130.8 million gallons daily.

All water delivered to San Francisco was, as heretofore, supplied entirely from San Andres and Cyrstal Springs Reservoirs in San Mateo County. These reservoirs were replenished from run-off, by water drawn from Calaveras Reservoir in Alameda and Santa Clara Counties and from the Hetch Hetchy System in the Sierra Nevada Mountains.

Water deliveries outside of San Francisco excepting approximately 47 adjacent square miles are here designated as suburban consumption. Practically all water deliveries outside the City of San Francisco are made to vendors who take large quantities at the department's transmission mains and distribute the water through their own distribution systems to individual consumers. The department's water is used by practically all cities and towns in San Mateo County and by the City of Palo Alto.

The City of Hayward, Alameda County, started using the department's water on November 27, 1949 to supplement their own supply. Distribution systems in these communities are owned by individual cities, public utilities companies, water districts or private individuals. Other relatively small deliveries are also made from the department's transmission mains in the southerly area of Alameda County.

RAINFALL, CATCHMENT AND STORAGE:

Rainfall at the Calaveras Reservoir was 32.85" which is 136% of normal, and 9 per cent higher than the previous year's rainfall. This is the greatest seasonal precipitation of record since 1906-07 when 32.98" was recorded. This seasons rainfall has been equaled or exceeded in six seasons since 1874-75, the earliest published records. On July 1, 1951 Calaveras Reservoir was at gauge height 140' - 7¼"(28.5 billion gallons) and receded to a low of 126'-0¼" (22.4 billion gallons) on November 18,1951. By January 12, 1952 the reservoir was full, gauge height 147'-5½" (31.5 billion gallons) and overflowed 77 out of the 100 days to May 21 when it was again at gauge height 147'-5½". During that period the water in the reservoir reached a maximum gauge height of 151'-3¼" on January 14, 1952. A total of 28.9 billion gallons of water was released through the needle valve and spilled through the overflow into the creek; 6.8 billion gallons were withdrawn for consumption and 2.1 billion gallons were added to storage during the fiscal year, making a total productivity of 37.8 billion gallons which is equal to 103 MGD.

Rainfall on the Peninsula watersheds was approximately 135 per cent of normal, and 25 per cent higher than the previous season. Crystal Springs Reservoir on July 1, 1951 was at gauge height of 109'-0¼" (16.9 billion gallons) dropping to 95'-6" (12.1 billion gallons) on December 1, 1951. The highest gauge reading, 118'-3½" (20.8 billion gallons) occurred on June 4, 5 and 6, 1952. On June 30, 1952 the water level was at gauge height 118'-2" (20.8 billion gallons). Seasonal rainfall at San Andres Reservoir amounted to 46.09 inches or 123 per cent of normal. At the Pilarcitos Reservoir seasonal rainfall amounted to 60.07 inches or 132 per cent of normal.

The seasonal gain in storage in City, Peninsula and Calaveras Reservoirs, from a low 43,735 million gallons on November 30, 1951 to a maximum of 62,288 million gallons on January 25, 1952, amounted to 18,553 million gallons. Surface storage in these reservoirs on June 30, 1952 was 59,077.2 million gallons as compared to 54,235.6 million gallons at the end of the preceding year.

Well No. O-1 in the Pleasanton Valley, was operated the full year to supply the Hearst Ranch with water.

TRANSMISSION:

Water consumption in the San Francisco area required delivery of a daily average of 82.9 million gallons into the City Distribution System. Of this amount, an average of 33.1 million gallons daily was delivered through the 60 inch and 44 inch Crystal Springs Pipe Lines; 34.0 million gallons daily through the San Andres 54 inch and Sunset 60 inch pipes; 7.6 million gallons daily through the College Hill Pipe Line and 8.2 million gallons daily through the Baden-Merced Branch Pipe Line.

Suburban consumption, averaging 26.2 million gallons daily, was supplied directly from the several transmission and supply lines at various points in Alameda, Santa Clara and San Mateo Counties.

An average of 25.5 million gallons daily was pumped from Crystal Springs Reservoir into the San Andres Reservoir through the Crystal Springs Aqueduct and to augment the San Andres supply an average of 4.3 million gallons daily was pumped by Alemany Pumps into the higher levels of San Francisco.

The three Bay Division Pipe Lines carried an average of 81.3 million gallons daily to the westerly side of San Francisco Bay. Of this amount, an average of 69.7 million gallons daily was delivered into Crystal Springs Reservoir and the remaining 11.6 million gallons per day was delivered to consumers in the lower peninsula area. Of the total amount of 81.3 million gallons per day, Hetch Hetchy supplied 59.0 million gallons daily and the Alameda sources, 22.3 million gallons daily.

RESERVOIRS:

On July 1, 1951 the storage in Calaveras Reservoir was 28,460 million gallons or 90 per cent of its capacity. This storage dropped to 22,398 million gallons on November 18, 1951 then rose to its capacity 31,550 million gallons on January 12, 1952 dropping to 31,213 million gallons on February 20, 1952 and again reaching capacity on February 24. At the end of the fiscal year the storage was 30,621 million gallons, or 2,161 million gallons more than at the beginning of the fiscal year.

Storage in Crystal Springs Reservoir dropped gradually from 16,858 million gallons on July 1, 1951 to 12,094 million gallons on December 1, 1951. The water storage increased to 20,826 million gallons on June 4, 1952, then dropped to 20,768 million gallons or 92 per cent of the reservoir capacity, by June 30, 1952.

San Andres Reservoir storage on June 30, 1952 was 4,511 million gallons or 73% of its capacity, this being the lowest storage during the fiscal year. Between January 17 and 30, 1952 the reservoir was filled to its capacity of 6,190 million gallons and overflowed during this period. The maximum gauge height reached was 86'-7½" on January 26, 1952 being 7½" above the spillway. This excess accumulation was due to the unusually high runoff for that period. The balance of the year the high level was maintained by operating Alemany Pumps and pumping from Crystal Springs Reservoir.

On July 1, 1951 the storage in Pilarcitos Reservoir was 800 million gallons. The minimum storage, occurring on November 30, 1951 was 497 million gallons. The maximum storage was 987 million gallons and was reached on January 25, 1952. Storage at the end of the fiscal year was 757 million gallons, or 75 per cent of the reservoir's capacity.

During the year Pilarcitos Reservoir supplied 1,781 million gallons to San Andres Reservoir.

PUMP OPERATIONS:

The pumps of Irvington Pumping Station were operated from December 18, 1951 to May 28, 1952.

This station pumped into the Bay Division Pipe Lines No. 1 and 2 during that period, a total of 1,338 million gallons of water supplied from Sunol Filter Galleries. No water was pumped from Pleasanton Wells into the Pleasanton Pipe Lines for conveyance to Sunol.

In order to maintain high water level in San Andres Reservoir it was necessary to operate the Crystal Springs- - San Andres Pumps throughout the year, except for 15 weeks during the rainy season. A total of 9,317 million gallons was pumped from Crystal Springs to San Andres Reservoir making a daily average pumpage of 25.5 million gallons.

Baden Pumping Station was not operated during the year but the operating units were maintained in a condition of readiness.

The Alemany Pumping Station was operated 169 days pumping a total of 1,585 million gallons from the University Mound Reservoir into the College Hill and Sunset Systems, which are normally supplied from San Andres Reservoir.

PIPE LINES:

All water brought through the various transmission lines was treated with chlorine.

The Sunol Pipe Line from the Alameda Creek Siphon to the Town of Sunol, delivered a total of 68.1 million gallons of water during the year. Of this total, 47.5 million gallons were used for irrigation and the balance of 20.6 million gallons was used for the Sunol domestic supply.

Between October 9, 1951 and May 28, 1952 the Niles-Irvington Pipe Line was used 100 days to carry water gathered at Sunol Filter Galleries to the Irvington Pumping Station from where the water was boosted into the Bay Division Pipe Lines. A total of 1,338 million gallons was pumped into the Bay Division Pipe Lines from the Niles-Irvington Pipe Lines.

On th west side of the bay the section of the Alameda Transmission Line, between Burlingame and San Carl os, contined to deliver Crystal Springs water to local consumers.

The Cyrstal Springs 60 inch pipe line was in service throughout the year carrying an average of 40.3 million gallons per day from the reservoir. The Crystal Springs 44 inch Pipe Line was out of service from March 18, to April 19, 1952. During the remainder of the fiscal year it carried 4,972.8 million gallons, an average of 13.6 million gallons per day for the year. Of this total of 53.9 million gallons daily, 28.7 million gallons daily were delivered to, and used in, the University Mound Distribution System and by consumers between it and the Millbrae Headquarters; 4.3 million gallons per day were delivered to University Mound Reservoir, from where it was pumped through the Crosstown Pipe Line to higher level distribution systems in San Francisco; 8.2 million gallons per day were diverted from the Crystal Springs 60-Inch Pipe Line into the Baden-Merced Branch Pipe Line, through which it was delivered to consumers along the Pipe Line and to Merced Manor Reservoir and the balance of 12.7 million gallons daily was delivered to the distribution systems of the several Peninsula Communities, as far south as San Carlos.

During the fiscal year the three Bay Division Pipe Lines carried a total of 29,746 million gallons to the westerly side of the bay, of which 25,521 million gallons were delivered through the Pulgas Temple to Crystal Springs Reservoir.

The Palo Alto Pipe Line delivered a total of 1,790 million gallons to various consumers along the line south of Redwood City for an average of 4.9 million gallons daily. The maximum weeks' demand on this line averaged 8.9 million gallons daily as compared to 10.3 million gallons daily for the maximum week's demand during

the preceding year.

The College Hill Distribution District consumption averaged 8.7 million gallons per day. Of this amount 7.6 million gallons daily were delivered through the 30 inch College Hill Pipe Line and the balance of 1.1 million gallons per day came from Alemany Pumps via the Cross Town Pipe Line. The 7.6 million gallons daily supply through the College Hill Pipe Line came from the San Andres Reservoir via the 44 inch San Andres Pipe Line.

The Baden-Merced Branch Pipe Line carried an average of 8.2 million gallons per day all of which was supplied from the 60 inch Crystal Springs Pipe Line.

During the year the 54 inch San Andres Pipe Line carried a total of 12,467 million gallons of water, or an average of 34.1 million gallons per day, from San Andres Reservoir to Sunset and the other high San Francisco Pressure Districts, and to consumers outside of the City and County of San Francisco.

AQUEDUCTS:

The Sunol Aqueduct carried water throughout the entire year from the Sunol Filter Galleries to Niles Reservoir. Between December 18, 1951 and May 28, 1952 water was carried through the Niles-Irvington Pipe Line to Irvington Pumping Station, where it was then pumped into the Bay Division Pipe Lines No. 1 and 2 for delivery to consumers on the west side of San Francisco Bay. During the balance of the year the Sunol Aqueduct water was delivered to the Alameda County Water District.

The Crystal Springs Aqueduct was in operation $8\frac{1}{4}$ months of the year, carrying a total of 9,317 million gallons of water to San Andres Reservoir from Crystal Springs Reservoir.

The Pilarcitos Aqueduct to San Andres Reservoir was in service during the entire fiscal year and carried an average of 4.9 million gallons daily to San Andres Reservoir. This aqueduct has a capacity of 40 million gallons per day.

ALAMEDA DIVISION GENERAL:

Calaveras Reservoir was given three copper sulphate treatments for algae control. The launch used in this work was cleaned and painted.

Areator discharge pipes at Calaveras Dam were cleaned and painted.

Leaks on Bay Division Pipe Line No. 1, due to electrolytic action, were repaired. Some painting was also done on this pipe line.

Piling on Bay Division Pipe Lines No. 1 and 2 were repaired where damaged by limnoria and the air valves were cleaned on these two lines.

Work done at Sunol included burning off the filter bed area to dispose of driftwood left on recession of flood waters.

Well No. O-1 in the Pleasanton Valley was operated intermittently the full year to supply the Hearst Ranch with water because of the low ground water level in the valley and the City's obligation to supply water during the periods of low water level. No water was pumped by the Department from Pleasanton Wells for export during the year.

The Alameda Diversion Dam was sluiced out three times due to the heavy rains.

PENINSULA DIVISION, GENERAL:

Baden pumps were not operated during this fiscal year but the motors were kept in readiness for any emergencies.

None of the Crystal Springs line booster pumps were operated during the year as reservoir levels were again of sufficient height for the demand to be provided by gravity flow. San Andres pumps were not operated for one hundred and six days during the rainy season. The 20 inch check valve in pump No. 4 discharge line was repaired after nineteen years of service.

The Pulgas Pump Station old roof which was leaking badly was replaced.

Both upper and lower Crystal Springs lakes were treated twice with copper sulphate during the year. The launch on the Upper Lake was replaced, the boat house was rebuilt and the ranger's cottage was repaired.

The porch and foundation of the San Andres Reservoir keeper's cottage was repaired. During the winter storms, large trees fell across the grounds and damaged structures at the head of the reservoir station. Fences along Skyline Boulevard were repaired and posts painted.

At Pilarcitos Reservoir the feeder flume was repaired and the lake was treated once with copper sulphate.

For the first time in many years there was no serious leak in the 30 inch College Hill section of San Andres Transmission Line No. 1. There were no leaks in the San Andres No. 2 Line. Repairs were made to the San Andres Pipe Line No. 3 pipe trestle over Arata Gulch.

On March 16, 1952 a slide in the bank broke the Crystal Springs 44" Pipe Line (No. 1) necessitating removal of 200 cubic yards of sliding earth above the line, excavating a new pipe trench and laying approximately ninety feet of 44 inch pipe. A section of this pipe line on the trestle near the dam blew out on June 24. The pipe was bad over two of the large concrete piers so repairs were made by placing two three course sections.

During the periods of that repair work all of the Crystal Springs water was transmitted through the 60 inch pipe line to Burlingame where a part was diverted into the 36 inch and 44 inch lines to supply local consumption.

The housings over Crystal Springs 44" Pipe Line where on trestles were repaired and painted. Repairs were also made on this line at Brisbane, South San Francisco and Burlingame.

No repairs were made to Crystal Springs 60" Pipe Line. A cross connection between this line and the 44" line was made on the Crystal Springs road to supply water to consumers when either line is shut down for repairs.

The Baden to Sunset Reservoir section of Sunset Supply Line is being fed by water from the San Andres 54 Inch Pipe Line at Baden. This has increased the output through the San Andres 54 Inch Pipe Line by eleven million gallons per day. During the winter floods a concrete pier under the pipe in Colma Creek was tilted and had to be removed.

All infrequently operated valves and blowoff valves on Bay Division Pipe Lines No. 1 and 2 were cleaned and greased. A number of the expansion joints in pipe line No. 2 on the Ravenswood bridge were leaking badly and had to be repacked. A cross connection between lines No. 1 and 2 was made during construction near Pulgas Tunnel. Two electrolytic leaks were repaired in the No. 1 line west of Redwood City and one at Ravenswood where tide water was in the ground under the pipe.

The lines on trestle between the Pulgas Pump Station and the bridge are subjected to bay water from high tides. The No. 1 line is showing the effects of this condition and preventive measures should be taken. The levee at the Pulgas Pumps was repaired.

One leak occurred in the Alameda 36-Inch Pipe Line between San Mateo and Burlingame in a section of the pipe not lined in 1949 and no other leaks developed in this pipe line this year. The 8 inch connecting pipes for the Alameda line at Burlingame were replaced with 12 inch pipe.

No repairs were made to the Palo Alto Pipe Line during the year.

A leak in the Crystal Springs No. 1 Pump Discharge Line to the canal broke out several times.

A section of concrete pipe between the new concrete tunnel and old brick tunnel in Stone Dam Aqueduct was broken by a large slide. Repairs were delayed for several weeks by a washout in the access road. The Stone Dam overflowed and considerable water went down Pilarcitos Creek to the ocean. The bridge leading to Stone Dam was repaired.

A 6 inch supply line from the Pilarcitos Aqueduct broke out several times and will soon have to be replaced or discontinued.

The Department's two buildings on the old reservoir tract

at Millbrae were connected to the sewer line of Lomita Park-Capachino Sanitary District through arrangements made with purchaser of part of that property.

Repairs were made to the General Maintenance Foreman's Cottage and frequently to the fences along the old Municipal Railway right of way.

The main driveway in the Yard at Aqua was resurfaces.

ALAMEDA COUNTY WATER DISTRICT:

During the year, a total of 1,896,660,000 gallons of water was released to the Alameda County Water District for replenishment to the underground gravel of the Niles Cone area. Under the terms of the 1920 award, 350,185,000 gallons were due the district during the year.

The quantities of water due the District and the quantities released by the Water Department to the District for replenishing the underground waters for each of the past five years are as follows:

	Due the District	Released to the District
1948	867,464,000	192,580,000
1949	761,137,000	None
1950	975,861,000	220,670,000
1951	8,095,000	2,900,694,000
1952	350,185,000	1,896,660,000
Totals	2,962,742,000	5,210,604,000

PLEASANTON TOWNSHIP COUNTY WATER DISTRICT:

The Sheriff of Alameda County continued to use the U.S. Navy's Camp Shoemaker as Santa Rita Rehabilitation Center during the fiscal year. Water supplied to this institution, as well as to the former Naval housing project, Komandorski Village and the new Parks Air Force Base, was taken from the Navy's 4.105 acre tract within the Pleasanton Water District. During the year a new pipe line was constructed from the Navy's 100 acre tract to the Shoemaker Water System but no domestic supply was taken from the 100 acre tract. Except for artesian flow above ground surfaces between 1940 and 1944, no water was taken from the Water Department's Pleasanton Wells for export subsequent to 1939 until February, 1948. Between this latter date and April 30, 1949, the Department took an average of 9.9 million gallons per day for export to San Francisco. Subsequent to April 30, 1949, San Francisco has taken no water from its Pleasanton source except for local use.

Withdrawals for the above enumerated purposes together with those for domestic and irrigation use within the District materially lowered the water table over a period of years throughout the entire Water District. Water level in Pilot well W-103X had a seasonal high point of 66 feet below ground surface in February 1948 and 59 feet in April 1952.

The Town of Pleasanton continued, throughout the year, to obtain all its water supply from Water Department wells, located at Black Avenue and Santa Rita Road, and paid all resulting electric power bills which payments were later reimbursed by the Water Department except from December 14, 1951 to May 14, 1952, during which period Pleasanton's Pilot Well was above the elevation where San Francisco is required to furnish the Town of Pleasanton with water. Throughout the year, the Department also reimbursed the District for electric power charges for pumping "Community Wells" and paid power bills rendered to land owners, except as otherwise provided in the "Pleasanton Township County Water District Agreement," all of which was in conformity with the Department's obligations under the Pleasanton Water District agreement.

Runoff into the Department's local storage reservoirs during the 1951-52 season, was of sufficient quantity that pumping from Pleasanton Wells was not resumed. There was definite improvement of the water table, which it is hoped will eliminate the necessity of possible excessive expenditures in providing water supplies for land owners in conformity with the "Pleasanton Water District Agreement."

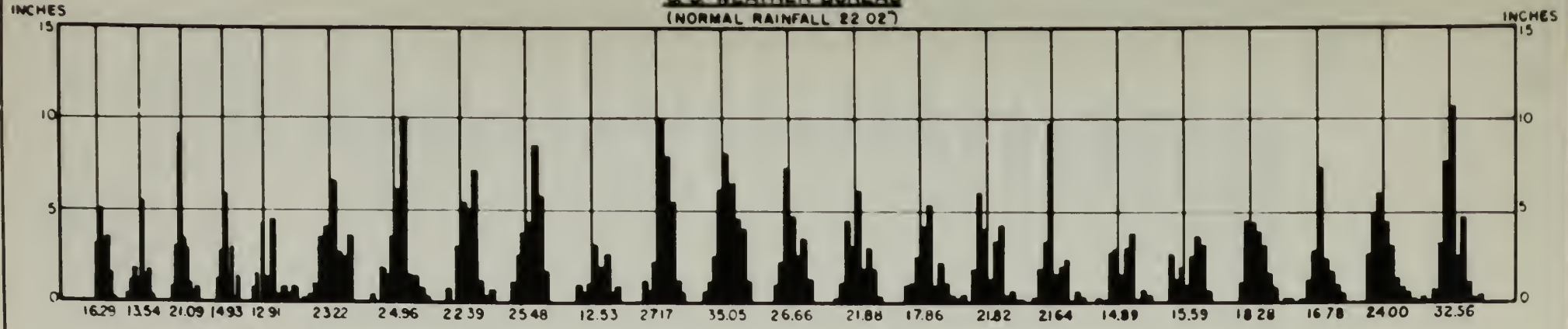
SUBURBAN METERS:

There were 40 new services installed during the year for suburban consumers. The total number of suburban meters at the close of the year was 1047 of which 1027 serviced 758 active consumers; an increase of 3 active consumers for the year.

SAN FRANCISCO RAINFALL IN INCHES

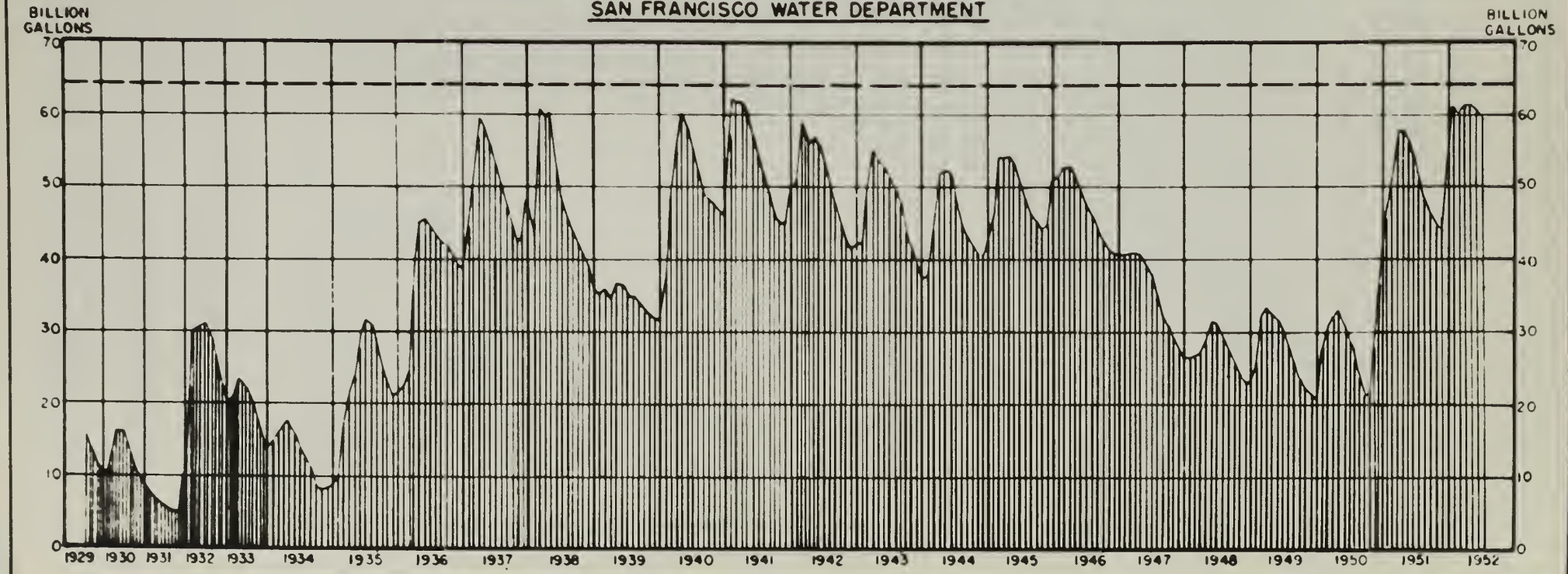
U.S. WEATHER BUREAU

(NORMAL RAINFALL 22.02")



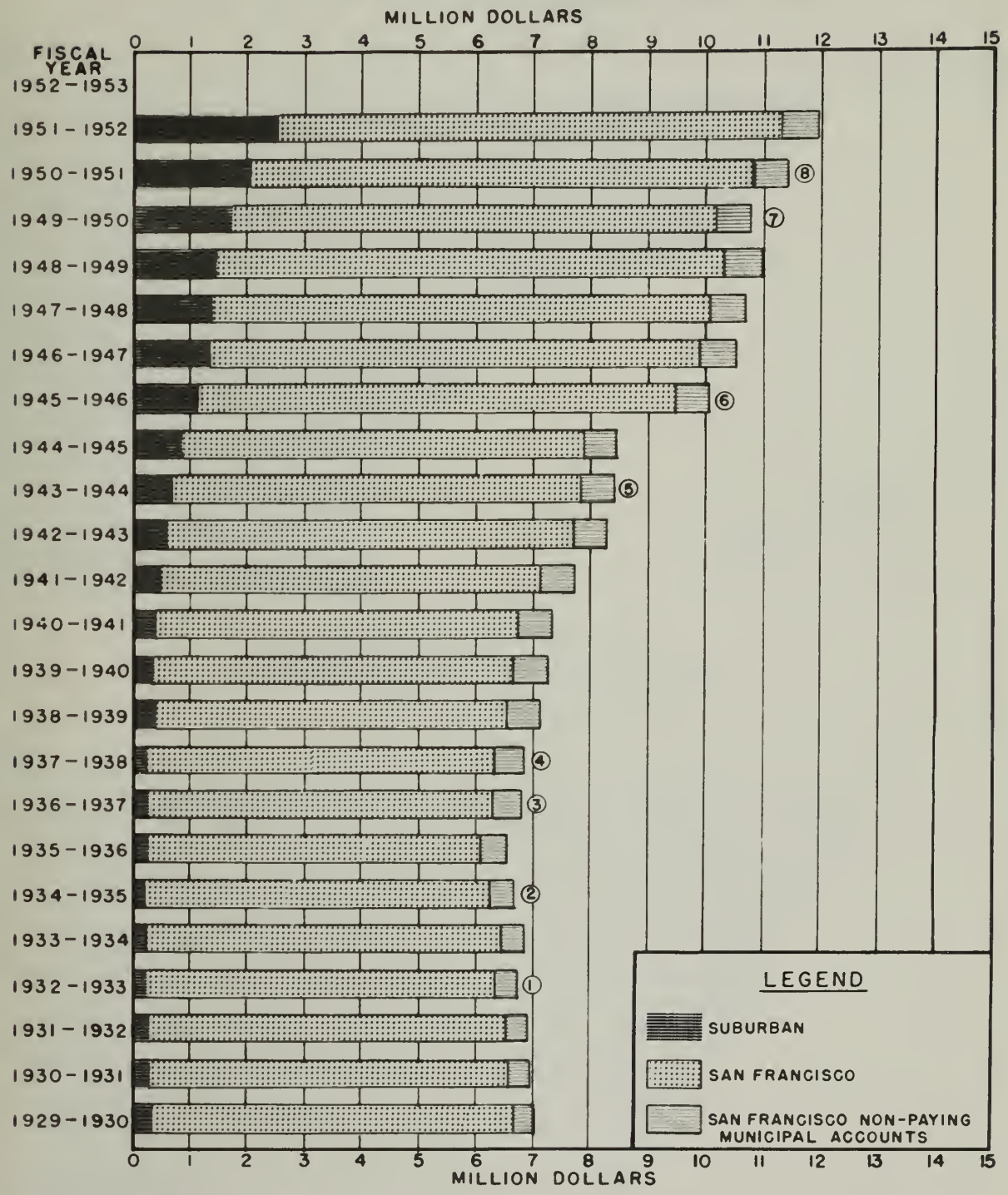
STORAGE IN BILLION GALLONS

SAN FRANCISCO WATER DEPARTMENT



SAN FRANCISCO WATER DEPARTMENT

WATER SALES

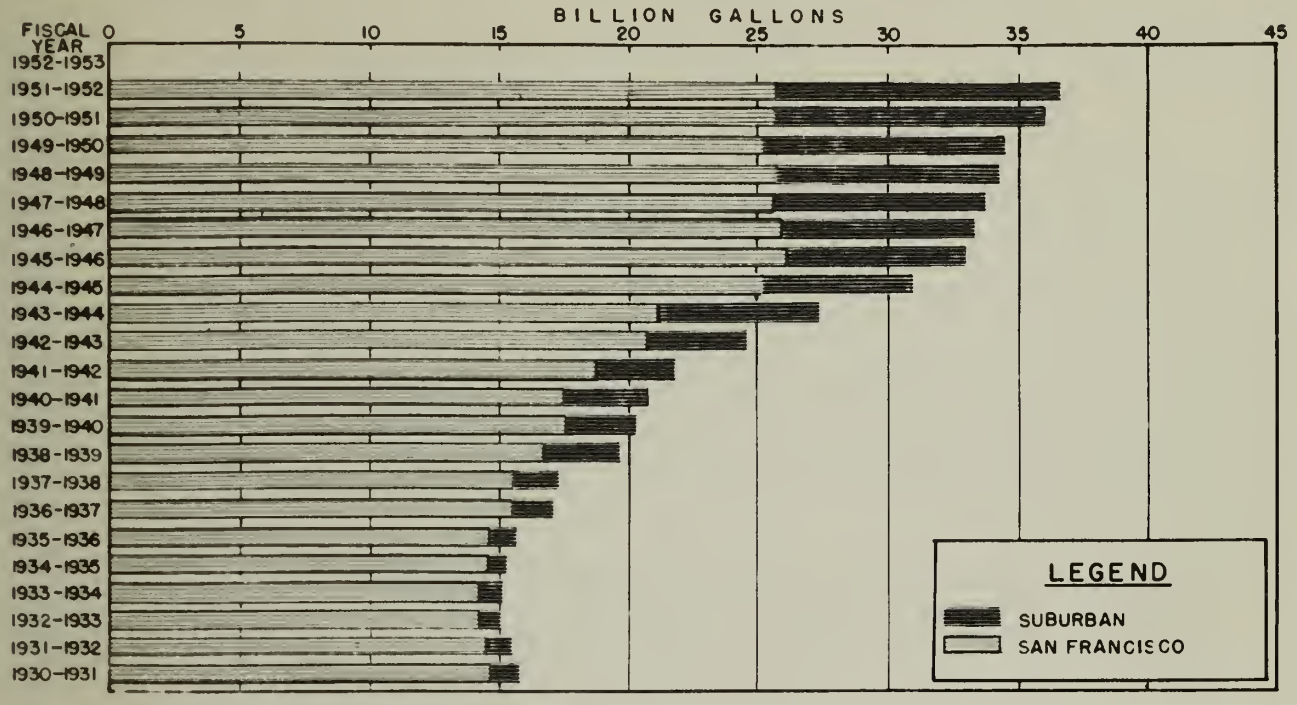


RATE CHANGES:—

①	OCT. 26, 1932	75%	REDUCTION ON FIRE SPRINKLER SERVICE CHARGES.
②	DEC. 1, 1934	10%	REDUCTION ON ALL RATES EXCEPT HYDRANTS AND SPRINKLERS.
③	JAN 1, 1937	7% & 48%	REDUCTION ON INCREASED USAGE AT INDUSTRIAL & WHOLESALE RATES.
④	JAN. 1, 1938	7% & 48%	REDUCTION APPLIED TO ALL " " " " " "
⑤	DEC. 1, 1943	15%	REDUCTION TO ALL CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO.
⑥	SEPT. 1, 1945		PRECEDING 15% REDUCTION REMOVED FOR CONSUMERS WITHIN CITY & COUNTY OF SAN FRANCISCO. 15% INCREASE FOR SUBURBAN CONSUMERS.
⑦	JULY 1, 1949		INCREASE OF HALF-CENT PER 100 CU. FT. :—SAN CARLOS & SAN MATEO.
⑧	FEB. 1, 1951		INCREASE FOR FOURTH BLOCK WATER TO 15 CENTS FOR CITY & 16 CENTS FOR SUBURBAN; 10% DISCOUNT ON FOURTH BLOCK IF WATER WERE NOT TAKEN FOR RESALE

SAN FRANCISCO WATER DEPARTMENT

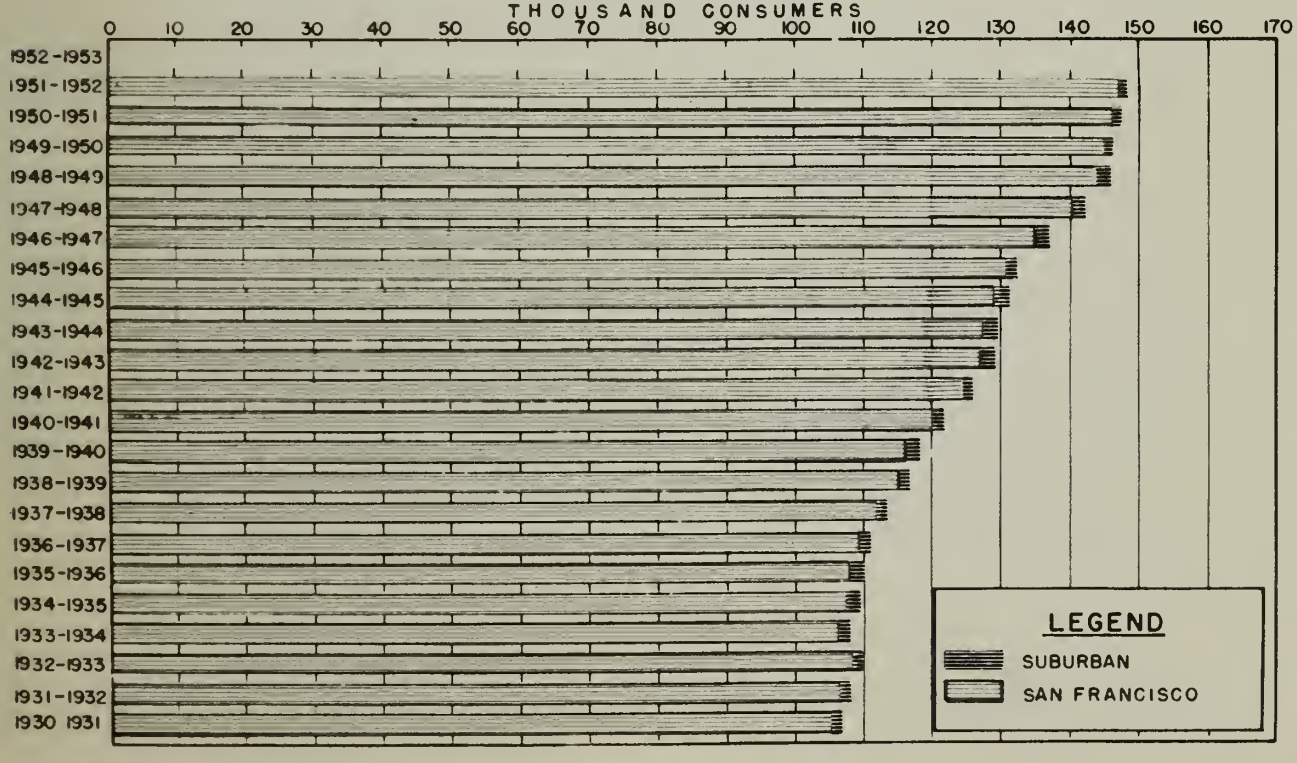
WATER DELIVERED AT CONSUMERS METERS



SAN FRANCISCO WATER DEPARTMENT

NUMBER OF ACTIVE CONSUMERS

AS OF JUNE 30



CITY DISTRIBUTION DIVISION

WATER CONSUMPTION:

The average daily consumption in San Francisco consumption area was 82,892,495 gallons, an increase of 92,616 gallons, or about 0.1 percent over the previous year. There was a decrease in consumption in three residential districts, namely, Sunset, College Hill and Stanford Heights, amounting to 941,064 gallons, or 2.0, 2.6 and 0.8 percent respectively. Forest Hill and Merced Manor residential districts showed an increase in average daily consumption amounting to 485,150 gallons, or 4.5 and 24.2 percent respectively. The industrial district, i.e. University Mound, showed an increased consumption of 548,530 gallons, or 1.9 percent.

The area's maximum daily consumption during the year of 104,767,000 gallons occurred on May 31, 1952, while the day of minimum consumption occurred on December 25, 1951, and amounted to 62,845,000 gallons.

OPERATING CONDITIONS:

Due to the fact that San Francisco again experienced a rather cool year, having had no hot weather for any length of time, there were no "no water" complaints due to the inadequacy of the system.

The construction of the concrete lining and roofing of Sutro Reservoir was completed on February 29, 1952. The basin is now under test and should be placed in service by the end of 1952. Contracts were prepared for the laying of the required steel feeder main, but due to government requirements some delay was experienced in the actual construction. Most of the cast iron pipe required for the secondary feeder main for the Sutro District has been or is being laid. All work on the primary and secondary feeder mains should be completed by the end of this calendar year. When this work is completed the pressure regulators at Washington and Lyon Streets will be eliminated, and the area now being supplied by the regulators will be transferred to Sutro Reservoir

The changeover from the Stanford Heights and Sunset Districts to the Sutro District still remains to be done. This work will in all probability be an accomplished fact by the middle of 1953.

FEEDER MAINS:

From past experience a hot spell of several days' duration would create a serious situation throughout the City. This condition can only be overcome by the laying of additional feeder mains in the various distribution districts, as well as the rearrangement of the existing feeder mains.

Following is a list of additional feeder mains required, by districts, exclusive of the Sutro Reservoir project:

Wilde Avenue Reservoir District	Feet
12" - Oneota & University to Harkness & Goettingen	2700
Stanford Heights Reservoir District	
12" - O'Shaughnessy & Portola to Mangels & Ridgewood	11000

Sunset Reservoir District	Feet
36" - Kirkham & 20th Ave. to 19th Ave. & Lincoln Way	2000
12" - 36th Ave. & Vicente to 36th Ave. & Judah	8000
16" - 28th Ave. & Santiago to 36th Ave. & Santiago	2500
16" - 28th Ave. & Pacheco to 36th Ave. & Pacheco	2500
16" - 28th Ave. & Moraga to 36th Ave. & Moraga	2500
16" - 29th Ave. & Judah to 36th. Ave. & Judah	2000
12" - Ocean & Phelan to Onondaga & Mission	4500
12" - 19th Ave. & Holloway to Eucalyptus & Melba	4600
12" - Fulton & 8th Ave. to California & 8th Ave.	4100
12" - Fulton & 18th Ave. to California & 18th Ave.	4100
12" - California & 4th Ave. to California & 18th Ave.	4200
12" - California & 23rd Ave. to California & 29th Ave.	1800
12" - O'Farrell & Octavia to O'Farrell & Larkin	2400
12" - Dolores & 21st St. to Dolores & 24th St.	1700
16" - 26th St. & Shotwell to 23rd & Vermont Sts.	8000
12" - Oxford & Silver to Yale & Wayland	3000
University Mound Reservoir District	
16" - 22nd St. & Indiana to 22nd & 3rd Sts.	800
12" - Woolsey & Goettingen to Jamestown & 3rd St.	4000
College Hill Reservoir District	
12" - Ellis & Buchanan to Geary & Scott	3000
16" - Franklin & Market to Franklin & Ellis	3500
12" - Webster & Hayes to Grove & Buchanan	1000
16" - Sanchez & 17th St. to Fillmore & Haight	4000
16" - Bowdoin & Alemany to Girard & Mansell	7000

Following is a list of feeder mains which should be transferred from one district to another for better distribution:

	LOCATION		RESERVOIR	
Size	From	To	From	To
16"	Larkin & Jackson	Larkin & Francisco	P.H.Regulatros	Sunset
12"	Post & Powell	Post & Kearny	University	College
12"	Stockton & Post	Stockton & Sutter	Mound	Hill
12"	Larkin & Post	Larkin & O'Farrell		
12"	O'Farrell & Larkin	Jones & Geary		
12"	Leavenworth & O'Farrell	Leavenworth &Geary		
12"	Post & Fillmore	Buchanan &O'Farrell	College Hill	Sunset
16"	Fillmore & Bush	Fillmore & Hayes		
12"	24th.St.&Sanchez	24th.St.& Dolores		
12"	O'Farrell & Fillmore	O'Farrell & Buchanan		
12"	17th St. & Pond	17th & Douglass	Stanford Hts	Sunset
12"	17th St.&Douglass	17th & Ashbury		
12"	Douglass & 24th	22nd & Diamond		
12"	Plymouth & Lobos	Ridgewood&Mangels	Stanford Hts	Sutro
20"	Lyon & Washington	Ashbury & 17th St.		
16"	Kirkham & 8th Ave.	20th Ave.&Moraga		
20"	20th Ave.&Moraga	Taraval & Dewey		
12"	Octavia &O'Farrell	Octavia & Ellis		College
12"	Ellis & Van Ness	Ellis & Laguna	Sunset	Hill
30"	Sloat & 23rd Ave. (Central Pumps)	Portola&Claremont		
30"	Santa Clara & Portola	Capitol & Sadowa	Sunset	Sutro
12"	Ocean & Faxon	Ocean & Harold		

With the completion of the Sutro Reservoir project the critical storage situation in the Stanford Heights Reservoir District will be relieved. The total load in the Sutro Reservoir District, however, may be greater than the available pumping capacity as now installed at Central Pumps, and therefore additional pumps may be required as the district is enlarged

TRANSMISSION MAINS:

It must again be restated that the original 44" Crystal Springs transmission main, as well as the 30" College Hill transmission main, are in very poor condition, the carrying capacity of each being but 50 percent of the original. These mains should be either reconditioned to the fullest practicable extent or they should be replaced with new mains.

CITY RESERVOIRS:

An inspection of the composition roofs over the various city reservoirs resulted in the finding that they are in very poor condition. The reservoirs in question are Potrero Heights, Francisco, Stanford Heights and Clarendon Heights Tank. Some of the above-mentioned work will be done in the coming fiscal year.

The water in Lake Honda Reservoir, while not in use, was made extremely turbid and unsightly by the wash from the Real Estate Subdivision development of the property to the east. This condition occurred twice this last winter. The turbidity was eliminated by coagulation.

Plans are now being prepared by the Standard Building Company for the development of the property north of Portola Drive and west of Twin Peaks Boulevard. Most of this property is at such elevation as to require the water supply to come from Forest Hill Tanks. Also with the development of Diamond Heights, i.e. the property south of Portola Drive and east of O'Shaughnessy Boulevard, much of the water supply will also have to come from Forest Hill Tanks. The total storage of the Forest Hill Tanks is only 600,000 gallons at an elevation of 800 feet. Provision has been made in the 1952-53 budget for additional storage, together with an adequate pumping station and feeder mains. This new reservoir, known as Summit, will be located just south of Palo Alto Avenue and west of Twin Peaks, it being at an elevation of 800 feet, and having a capacity of from 10 to 15 million gallons. The pump station for supplying this reservoir will be located at Sutro Reservoir, and when put into operation will eliminate the present Forest Hill Pumping Station.

PUMPING STATIONS:

As in the previous fiscal year all pumping stations operated without any serious mishaps. Several of the smaller automatic stations experienced electrical troubles, the fuses in the principal incoming control switch burning out. These difficulties are due to a continuous overload in the station, but fortunately the trouble was discovered in time, thus avoiding any water shortage.

Additional pumps are on hand for the Lane Street Pump Station, Forest Hill Pumps and the Lake Honda Pump Station. These new pumps will be installed before the end of this calendar year.

Lake Merced Pump Station is now under construction and in all probability will be completed by the end of 1953. With the completion of this station it is expected that the steam-operated pumps at Central will be shut down.

CITY PIPE SYSTEM:

Several 12" cast iron feeder mains were laid during this fiscal year for new subdivision development. No feeder mains were laid for the development of the system.

The normal routine extensions of 4", 6" and 8" mains were made during the fiscal year as shown in the attached tables.

SERVICES AND METERS:

There were 1919 domestic and 37 fire services installed during this fiscal year. A total of 1998 new meters was set, 3203 meters changed and 763 brought home.

As in the previous year, old meters of many years' service and where the cost of repair is excessive, are being retired

With the continuous remodeling of the meter shop, the accuracy of all repaired meters is now practically equal to that of new meters, and the desired degree of efficiency of all meters is assured.

COMPLAINTS:

Again, as during last year, the principal complaint from the consumers is one of "poor pressure", which should read "poor supply". A careful inspection of these complaints again confirms the work of last year. They are due to either the service being choked or the housepiping being too small, or both A total of 747 complaints was received. As in the previous year each complaint was carefully inspected and analyzed and every complainant notified by mail of the results Of the total number of complaints received, 461, or 62.5%, services have been ordered renewed in this fiscal year due to their inadequacy.

The following is a tabulation of the results of the inspection and analysis of complaints received:

METER ONLY	NUMBER	PERCENT
Too Small	39	5.3
SERVICE AND METER		
Too Small	119	16.2
SERVICE		
Adequate	157	21.3
Inadequate	461	62.5
HOUSEPIPING		
Adequate	12	1.6
Inadequate	686	93 6
Valves Only	35	4.8
EXISTING PRESSURES, PSI		
Less than 20	2	0.3
20 to 30	72	9.6
30 to 35	84	11.3
35 to 40	107	14.3
40 to 60	298	39.9
60 to 80	109	14.6
80 to 100	52	7.0
100 to 125	19	2 5
over 125	4	0.5

Due to the lack of equipment and help, less than half of the complaints was taken care of. However, temporary help and equipment are now available, and it is hoped that this situation will be eliminated.

An ordinance was enacted which determines the size of the service, meter and house pipe in advance of actual construction or reconstruction. With the enactment of this ordinance "poor pressure" should be unknown in all remodeled or newly constructed buildings.

Experience has shown that with the correction of the service or house piping or both, as the case may be, that particular "poor pressure" complaints disappear.

WATER SALES DIVISION

For many years the Department has billed its government and large corporation water users on the last day of each month. Consequently, the bills for water service were never in the hands of these consumers until after the first day of the following month. A large percentage of these bills would have unpaid balances from the previous monthly billing. Realizing that many firms pay on or about the tenth of the month for bills received during the preceding month, we decided to move up our "end of the month" billing by a few days to a date which would allow these large bills to be in the hands of the consumers before they closed their books for that month and thus we would receive payment a full month earlier. This plan of earlier billing was instituted in February of 1952. Its success is attested to by the fact that our Accounts Receivable to Sales for the month of June dropped from 81.77% at June 30, 1951 to 76.02% at June 30, 1952.

Gross Water Sales for the fiscal year 1951-52 were $12,008,362. Allowances and refunds amounted to $26,149 so that Net Sales were $11,982,213, an increase of $579,469 or 5.08% over the previous fiscal year. San Francisco Net Sales, of which $630,813 were to other Municipal Departments in lieu of taxes, were $9,465,234, an increase of $129,052. Suburban Net Sales increased by $450,417 to $2,516,979.

Water delivered through consumers' meters amounted to 3,423 million cubic feet in San Francisco and 1,461 million cubic feet in the Suburban area, a total of 4,884 million cubic feet.

Additional revenue during the year, provided by the extra half cent rate for service from the Alameda Pipe Line, was $17,656. Total additional revenue for the three years since the rate was put into effect now stands at $49,161. Metered deliveries from the Palo Alto Pipe Line totaled 240,251,600 cubic feet for which we received $394,174 in revenue. Revenue derived from municipal utilities in the Suburban area taking water for resale was $1,132,069. Revenue from privately owned utilities was $1,139,792.

Orders received for installation of new services or distributors for domestic use totaled 1,638. Orders taken for installation of automatic sprinkler services totaled 38. New work, principally new building construction, inspected and supplied with water by our Builders and Contractors Section totaled 1,618.

There were 19,480 closing bills issued during the year, a slight decrease from the previous year. Accounts written off as uncollectible amounted to $3,596, an increase of $477. The Suspense balance, being accounts closed and awaiting collection or write-off, increased by $1,379 to $7,425 as of June 30, 1952.

Consumers' Accounts Receivable at June 30, 1952 amounted to $931,181, a decrease of $53,706 from the previous June 30. The percentage of Receivables to Sales for the month of June declined from 81.77% at June 30, 1951 to only 76.02% at June 30, 1952. Collections for the year were $11,409,740, an increase of $677,392 over the previous year. The use of pre-addressed return envelopes for payment of bills through the mail, started in April of 1951, continued during the fiscal year. About 40% of the envelopes supplied to our consumers with their bills are used to mail remittances. The policy of supplying these return envelopes has brought many favorable comments and has succeeded in increasing the percentage of bills paid by mail and reducing the percentage of payments received through the banks.

During the fiscal year, sixty four claims for damage were filed with the Controller in the total sum of $119,394.02, as a result of the activities of the Department. Excluded are 62 other claims never formally filed against the Department. In addition, 122 miscellaneous complaints were disposed of. Thirty one claims, twenty three of which were filed in the current year, were denied, for the total sum of $123,399.17. One of these was a $15,000.00 court action -- decided in our favor. Thirty four claims, twenty five of which were filed in the current year, were settled for $24,053.27. One of these was ordered paid by a judgment in favor of plaintiff for the sum of $20,000.00 plus costs. These operations represent a total saving of $96,727.33. On June 30, 1952, eighteen claims in the total sum of $34,172.70, remained unsettled.

FLUORIDE TREATMENT PLANT
SAN ANDRES OUTLET NO. 2

WATER PURIFICATION DIVISION

Normal water treatment practices and adequate precautions for safeguarding the San Francisco water supply were in force throughout the year. Disinfection of all supplies was continuous and water supplied to consumers complied with the bacteriological standards established by the U. S. Public Health Service for drinking water purity.

Source supplies varied in chemical content from a soft mountain water which is our major source of supply and which is now treated for corrosion control, to a relatively hard ground water supplying minor quantities. The final mixture served to consumers is moderately soft and of relatively low mineral content. In general the water is free of tastes and odors, and the quality is good for an unfiltered supply derived primarily from surface sources.

LABORATORY:

All analyses in the fields of biology, bacteriology and chemistry, except the necessary field tests, were performed in our laboratory at Millbrae. Under the revised program for approving laboratories recently adopted by the Division of Laboratories, State Department of Public Health, our laboratory has been certified as an "Approved Water Laboratory for Complete Chemical and Complete Bacteriological Analyses."

Following is a tabulation which summarizes the field and laboratory tests made during the year in connection with water treatment, sanitary control, and special investigations:

Bacteriological Examinations	11,455
Routine Microscopical Examinations of Algae	336
Electrical Conductivity Measurements	4,349
Partial Chemical Analyses	968
Dissolved Oxygen Tests	621
Analyses to Determine Origin of Leaks	251
Complaint Investigations	40
Turbidity Measurements	3,739
Miscellaneous Laboratory Tests not otherwise included	4,961
Chlorine Residual Tests	4,115
Miscellaneous Field Tests	1,507

The principal laboratory investigational work of interest was the development of methods for the preparation of stable indicator solutions for the volumetric determination of calcium and magnesium.

Radioactive testing equipment for field and laboratory use was purchased but delivery of all parts was not completed until the end of the fiscal year, permitting no opportunity for work with the equipment this year. A new fume hood was purchased but late delivery will require installation during 1952-53. A flame attachment for the spectrophotometer which was ordered previously was delivered this year.

CHLORINATION:

Disinfection of all supplies was adequate and continuous throughout the year, with no water being exposed to contamination between the time of last chlorination and the consumer's service.

Nine of our chlorination stations operated continuously with Tesla, Calaveras, Sunset, Francisco and Merced Manor operating for 11.9 months, 6.7 months, 10.8 months, 11.8 months and 3.0 months respectively. The Irvington Station operated for about six days during the disinfection of the New Bay Division No. 3 Line. All equipment is maintained in proper working order by a program of regular inspection, and repair when necessary.

A total of 919,088 pounds of chlorine was used during the year, a 3.3% increase as compared with last year's usage. Forty eight and six tenths per cent (48.6%) of the total was used at our Tesla station, 18.6% in the Alameda Division, 28.5% in the Peninsula Division and 4.3% in the City Distribution Division. The table included lists the individual station and division totals for the year. Chlorine dosages averaged 20.1 pounds per million gallons at the Tesla Station, 19.9 pounds per million gallons at the Calaveras Station, 6.8 pounds per million gallons at the Sunol Station and 7.5 pounds per million gallons at our Crystal Springs and San Andres Stations. High chlorine dosages at our Tesla and Calaveras Stations are necessary in order to maintain adequate chlorine residuals throughout the Coast Range tunnels and Bay Division Lines to control organisms entering with tunnel infiltration waters.

Construction of the San Andres No. 1 Replacement Chlorination Station was completed, equipment installed and the station placed in operation during November 1951.

The construction of the replacement building for the College Hill Chlorination Station was completed under contract No. 583 in December 1951, the equipment was installed by Water Department forces and the new station placed in operation February 19, 1952.

Material was purchased for the replacement of the

chlorination solution lines at Irvington Portal. The re-arrangement of facilities at Crystal Springs Station which was in progress at the end of last year was completed this year. The manual hoist for handling chlorine cylinders at the Calaveras station was replaced with an electric midget hoist which will facilitate operations and reduce the hazard of handling these cylinders in the limited space available there.

The portable chlorination equipment was used in a number of instances during the year for the disinfection of new pipe lines.

CORROSION CONTROL:

Operation of the Rock River Lime Treatment Plant for anti-corrosion control of our soft mountain water was continuous throughout the year except for very short shut-downs and a total of 987,550 pounds of quicklime was used. The average dosage throughout the year was 44.5 pounds per million gallons and this treatment maintained a pH of 9.1 throughout our aqueduct to Crystal Springs Reservoir when bringing in only Hetch Hetchy water. Operation of this plant to date indicates favorable results and consumer cities along the aqueduct find the water to be much less corrosive to their pipe lines, requiring a minimum of flushing to prevent red water complaints.

ALGAE CONTROL:

A total of 114,700 pounds of copper sulphate was required during the year for the control of algae activity in our local storage and impounding reservoirs. This is a 9.5% decrease as compared to our last year's usage and is 7% above the past 10 year average.

Calaveras was treated in early August for anabaena and ceratium, and again in May for volvox and ceratium, requiring a total of 59,100 pounds of copper sulphate. Upper Crystal Springs was treated in November for aphanizomenon and in June for aphanizomenon requiring a total of 20,800 pounds of copper sulphate. Lower Crystal Springs was treated in November for aphanizomenon and again in June for aphanizomenon, requiring 24,600 pounds of copper sulphate. San Andres reservoir was treated once only which was during November for aphanizomenon and asterionella, requiring 8,700 pounds of copper sulphate. Pilarcitos reservoir was also treated only once which was during May, for anabaena and aphanizomenon, requiring 1,500 pounds of copper sulphate. The sum total of water in storage in each reservoir at times of treatment was 98.6 billion gallons.

CROSS CONNECTIONS:

The number of services to consumers having cross connections with other sources of supply on their premises which are protected from backflow by double check valve assemblies, continues about the same, there being 106 in San Francisco and 54 in suburban areas. In addition there are some 385 of these check valve assemblies installed in service lines to fire or water service hydrants on the water front, to protect the system against possible salt water contamination, 209 of which were originally installed and are now maintained by the Water Department. Although a complete inspection of all assemblies was not made during the year, spot checks were made on a number of typical installations which indicated satisfactory operation. Regular inspections of critical installations are required of the consumer and reports of results are sent to the division.

INSPECTIONS:

Inspections of pipe lines and tunnels were somewhat reduced this year as only the Irvington Tunnel and the No. 2 Bay Crossing Line were inspected. One of the prime reasons for the inspection of the Irvington Tunnel at Alameda West was to log, for the record, a number of cracks in the lining which are not filled with calcium carbonate, a few of which probably developed after the tunnel was put in service. However the two inspections of the Bay Division Aqueduct indicated satisfactory conditions with respect to slime, and this is further borne out by the fact that few complaints of water quality have been received from consumers on this aqueduct. Periodic sanitary inspection of water sheds on a limited scale were made during the year for protective purposes. The annual inspection trip to Tuolumne Meadows with representatives from the U. S. Public Health Service and the Yosemite National Park was made in September, 1951. Sanitary conditions were found to be quite satisfactory, there being no evidence of sewage pollution of the head waters of our supply.

WATER QUALITY COMPLAINTS:

The dissolved chemical content of the water served to consumers was approximately the same as the water served last year and the turbidities showed an increase only in the water withdrawn from the Crystal Springs Reservoir. Calaveras Reservoir was out of service from December 7 until May 7 because of turbid water and the maximum recorded surface turbidity during the rainy season was 135 ppm. All water served complied with the bacteriological standards of the U. S. Public Health Service and objectional tastes and odors were absent. Harmful elements such

as arsenic, lead and hexavalent chromium were either absent or present in trace amounts only and elements such as copper, iron, zinc, magnesium sulphate and chloride were well within safety limits for drinking water. Iodine content was low but not entirely absent and both horon and fluoride were present only in very low concentrations.

The hardness of water served from the San Andres Reservoir ranged from 54 ppm to 66 ppm, with an average of 57.5 ppm or 3.36 grains per gallon. The pH ranged from 7.3 to 7.9 with an average of 7.56. The alkalinity ranged from 40 ppm to 56 ppm with an average of 49.5 ppm; the chlorides ranged from 12 ppm to 18 ppm with an average of 14.4 ppm; and the turbidities ranged from 1 ppm to 11 ppm with an average of 3.6 ppm. Water temperatures ranged from 48°F to 69°F with an average of 58.4°F. The dissolved oxygen content ranged from 7.6 ppm to 12.0 ppm, with an average of 9.77 ppm or 96% of saturation.

The hardness of the water served from Crystal Springs Reservoir ranged from 48 ppm to 70 ppm with an average of 56.7 ppm or 3.32 grains per gallon. The pH ranged from 7.2 to 7.9 with an average of 7.51. The alkalinity ranged from 43 ppm to 57 ppm with an average of 48.7 ppm, chlorides ranged from 9 ppm to 13 ppm with an average of 10.6 ppm; and the turbidities ranged from 1 ppm to 14 ppm with an average of 5.2 ppm. Water Temperatures ranged from 50°F to 70°F with an average of 58.8°F. The dissolved oxygen content ranged from 6.0 ppm to 12.0 ppm with an average of 9.15 ppm or 91% of saturation.

The hardness of the water served from the Bay Crossing Lines ranged from 16 ppm to 68 ppm with an average of 36 ppm or 2.10 grains per gallon. The pH ranged from 7.6 to 9.4 with an average of 8.54. The alkalinity ranged from 15 ppm to 71 ppm with an average of 34.1 ppm, the chlorides ranged from 4 ppm to 14 ppm with an average of 6.9 ppm; and the turbidities ranged from 0.5 ppm to 7.5 ppm with an average of 2.3 ppm. Water temperatures ranged from 48°F to 67°F with an average of 54.9°F. The dissolved oxygen content ranged from 6.0 ppm to 12.8 ppm with an average of 9.65 ppm, or 91% of saturation.

Dirty water continues to be the major cause of water quality complaints. All complaints pertaining to alleged illness were immediately investigated by this Division and in no case was the water shown to be the causative agent. Complaints from industrial users were, as usual, few and scattered and in general were of turbidity interfering with their processes. In line with our courtesy policy, aid was given to our consumer cities in the investigation of water quality complaints.

FLUORIDATION:

On November 6, 1951 the voters of San Francisco approved a "Declaration of Policy" favoring fluoridation and a partial treatment program was then initiated in accordance with the provisions of the ordinance passed by the Board of Supervisors on April 16, 1951. The program provides for the addition of fluoride in an amount not to exceed 1 ppm to the water in the San Andres 54" Transmission Line and to the water pumped at the Alemany Pumping Station. Treatment plants were designed with each plant being provided with a loss-in-weight type gravimetric feeder equipped for automatic operation with the chemical feed being controlled from an existing venturi meter. Construction of the plants began May 19 under Contract WD-613 and they were 65% completed on July 1, 1952. In response to an application dated May 12, 1952, an amended Water Supply Permit was received from the State Department of Public Health July 1, 1952 permitting the addition of fluorides to the San Francisco Water Supply in an amount not to exceed 1.2 ppm.

Fluoride will be added in the form of sodium silicofluoride and operation of the plants is expected to begin during the latter part of August 1952.

MISCELLANEOUS:

Heavy rains during January washed considerable silt into Lake Honda Reservoir, raising turbidities to 390 ppm. Although the reservoir has not been in service since Sunset Reservoir was placed in operation the worries and complaints of the public about the appearance of the water made artificial clarification desirable. Eight tons of alum were added to the reservoir on April 30 and May 1, using equipment improvised by the Department, and the subsequent flocculation and sedimentation reduced turbidities to 10 ppm.

Seventeen measurements of the infiltration water in a 2000' section of Twin Peaks Tunnel N.E. of Forest Hill Station were made during the last four months of the year. In addition, analyses were made for the record of the quality of the water at the various infiltration points, all data to be available for the determination of the effect if any, of Sutro Reservoir on the infiltration into this tunnel.

A recording conductivity meter was installed in the 8' tunnel of the Calaveras Dam for the purpose of recording the total dissolved mineral content of the infiltration water and to note the changes that occur as an aid in determining the origin of this water.

Some time was available during the latter part of the year for work on our experimental filtration program as a vacancy which had existed for 1½ years was finally filled.

A number of complete chemical analyses were made for the Hetch Hetchy Department in order that a record may be maintained of the quality of certain river waters in the San Joaquin Valley.

CHARTS AND TABLES:

The charts included cover water quality, algae activity and monthly chlorine usage over a five year period. The tables included list complete mineral analyses of source and consumer supplies, annual chlorine usage at our various stations and summaries of results of bacteriological examinations.

ANNUAL REPORT DATA

OPERATION OF CHLORINATION STATIONS

Location		Total Operating Time (months)	Chlorine Used (lbs.)	
Division	Station		Station Total	Division Total
Coast Range H.H.W.S.	Tesla	12.0	446,461	446,461
Alameda	Calaveras	6.7	135,525	
	Sunol Aq.	12.0	30,606	
	Irvington	0.2	4,793	170,924
Peninsula	Crystal Springs	12.0	144,512	
	San Andres #1	12.0	11,446	
	San Andres #2	12.0	95,747	
	San Andres #3	12.0	10,424	262,129
City Distribution	College Hill	12.0	8,279	
	Lombard	12.0	699	
	University Md.			
	Line #1	12.0	14,720	
	Line #2	12.0	9,591	
	Sunset	10.8	5,307	
	Francisco	11.8	52	
	Merced Manor	3.0	926	39,574
			Total	919,088

SAN FRANCISCO WATER DEPARTMENT

TYPICAL ANALYSES OF WATERS SERVED TO CONSUMERS

(Results expressed in parts per million, except pH and conductivity)

SOURCE	CRYSTAL SPRINGS LINES	SAN ANDRES LINES	BAY CROSSING LINES	STONE DAM RESERVOIR
Conductivity ($K \times 10^5 ohm^{-1}$)	13.9	15.1	6.5	29.7
pH	7.4	7.8	9.1	7.7
Total Solids (calculated)	85	90	41	16.8
Silica (SiO_2)	8.1	5.3	4.1	8.0
Sodium (Na)	9.8	10.9	6.3	19.2
Calcium (Ca)	12.8	15.0	6.4	28.0
Magnesium (Mg)	5.6	5.0	0.97	10.2
Iron, Dissolved (Fe)	0.05	0.04	0.04	0.02
Aluminum (Al)	0	0	0.06	0.01
Manganese (Mn)	0	0	0	0
Boron (B)	0.14	0.09	0.09	0.15
Fluoride (F)	0.06	0.05	0.05	0.04
Carbonate (CO_3)	0	0	1.8	0
Bicarbonate (HCO_3)	61	64	21	120
Sulphate (SO_4)	9.9	10.7	4.8	14.3
Chloride (Cl)	10	12	6	29
Nitrate (NO_3)	0.04	0.04	0.06	0.05
Hardness, Calculated ($CaCO_3$)	55	58	20	112
Alkalinity ($CaCO_3$)	50	52	20	98

Column 1 supplies downtown, commercial, waterfront areas of the City, and Peninsula communities as far south as San Carlos.
Column 2 supplies residential areas of the City
Column 3 supplies peninsula communities (south of San Carlos) and some communities in Alameda County.
Column 4 supplies Coast County Water District.

SAN FRANCISCO WATER DEPARTMENT

MINERAL ANALYSES - SOURCE SUPPLIES

(Results expressed in parts per million, except pH and conductivity)

SOURCE	Hetch Hetchy at Alameda E. Portal	Calaveras Reservoir	Pleasanton Wells	Sunol Filters	Pilarcitos Reservoir
ductivity (K x 10^5ohm^{-1})	6.30	22.5	54.8	48.7	15.7
	9.1	7.7	7.9	7.9	7.8
al Solids (Calculated)	36	128	321	291	96
ica (SiO_2)	3.0	7.0	15.0	6.8	6.5
ium (Na)	4.1	8.8	30.1	28.4	12.0
cium (Ca)	6.4	25.2	51.4	53.6	12.8
nesium (Mg)	1.5	8.8	25.4	18.9	5.5
r, Dissolved (Fe)	0.04	0.02	0.03	0.02	0.01
minum (Al)	0.06	0.03	0.03	0.01	0.01
ganese (Mn)	0	0	0	0	0
on (B)	0.15	0.15	0.18	0.20	0.08
oride (F)	0.06	0.10	0.05	0.06	0.06
bonate (CO_3)	2	0	0	0	0
carbonate (HCO_3)	23	105	269	234	65
lphate (SO_4)	2.8	17.2	39.5	49.0	10.5
loride (Cl)	5	7	28	18	17
trate (NO_3)	0.03	0.20	0.50	0.03	0.05
rdness, Calculated ($CaCO_3$)	22	99	233	212	55
kalinity ($CaCO_3$)	21	86	220	192	53

Exact analyses of run-off into Crystal Springs and San Andres reservoirs cannot be made as water from all sources in use mixes in these reservoirs.

MONTHLY SUMMARIES OF BACTERIOLOGICAL ANALYSES

SAMPLES COLLECTED FROM THE SAN FRANCISCO DISTRIBUTION SYSTEM

IN ACCORDANCE WITH CERTIFICATION REQUIREMENTS

Month	Number of Samples	Coliform Test - 10 ml Portions			Samples Positive (3 or More Tubes)	
		Number of Tubes	Tubes Positive	Per Cent Positive	Number Positive	Per Cent Positive
1951						
July	347	1735	31	1.78	6	1.73
August	351	1755	16	0.91	1	0.30
September	316	1580	18	1.14	1	0.32
October	351	1755	21	1.19	1	0.28
November	347	1735	24	1.38	4	1.15
December	347	1735	9	0.52	0	0
1952						
January	351	1755	13	0.74	1	0.29
February	316	1580	21	1.33	1	0.32
March	341	1705	114	6.69	13	3.80
April	336	1680	113	6.70	16	4.70
May	370	1850	70	3.78	7	1.89
June	336	1680	102	6.1	15	4.5

BACTERIOLOGICAL ANALYSES

ANNUAL SUMMARY OF RESULTS

RAW WATERS - SOURCES AND RESERVOIRS*

Origin of Sample	Agar Count No. per ml			Coliform Group 10 ml Portions			Samples		
	Min.	Max.	Av.	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos.	% Pos. Yr.
Moccasin Reservoir	1	3200	3350	255	169	66.2	51	35	68.6
Tesla	1	800	24	250	12	4.8	50	2	4.0
Calaveras Reservoir	1	500	64	300	137	45.6	60	28	46.7
Sunol Filters	1	90	4	260	107	41.2	52	19	36.6
Pleasanton Wells	1	40	2	215	5	2.2	45	1	2.2
Upper Crystal Springs Res.	1	800	41	255	99	38.9	51	20	40.9
Lower Crystal Springs Res.	1	120	21	265	155	58.5	53	31	58.4
San Andres Reservoir	1	180	18	265	159	60.1	53	33	62.3
Pilarcitos Reservoir	1	125	8	245	106	43.4	49	19	38.8
Stone Dam Reservoir	1	400	16	250	113	45.3	50	25	50
College Hill Reservoir	1	1000	52	530	263	49.7	106	51	48.1
Lombard Reservoir	1	58	5	525	211	40.3	105	39	37.2
University Mound Res. #1	1	800	10	525	183	34.9	105	35	33.3
University Mound Res. #2	1	720	14	525	169	32.3	105	32	30.5
Sunset Reservoir	1	60	4	525	90	17.1	105	12	11.4
Lake Honda Reservoir**	1	240	35	130	72	55.4	26	14	53.9
Lake Merced Reservoir***	1	3200	99	260	251	96.5	52	51	98.2
				M. P. N.					
				Min.	Max.	Av.			
Laguna Creek	25	8000	1490	0	24000	17200	30	29	96.6
Alameda Creek	1	10000	536	0	24000	8650	51	50	98.0
San Antonio Creek	3	4800	404	0	24000	15800	28	27	96.5

* - Includes all distribution reservoirs with chlorination facilities operating at the outlet.

** - Standby purpose only.

*** - Future emergency standby source.

M.P.N.-Most probable number per 100 ml.

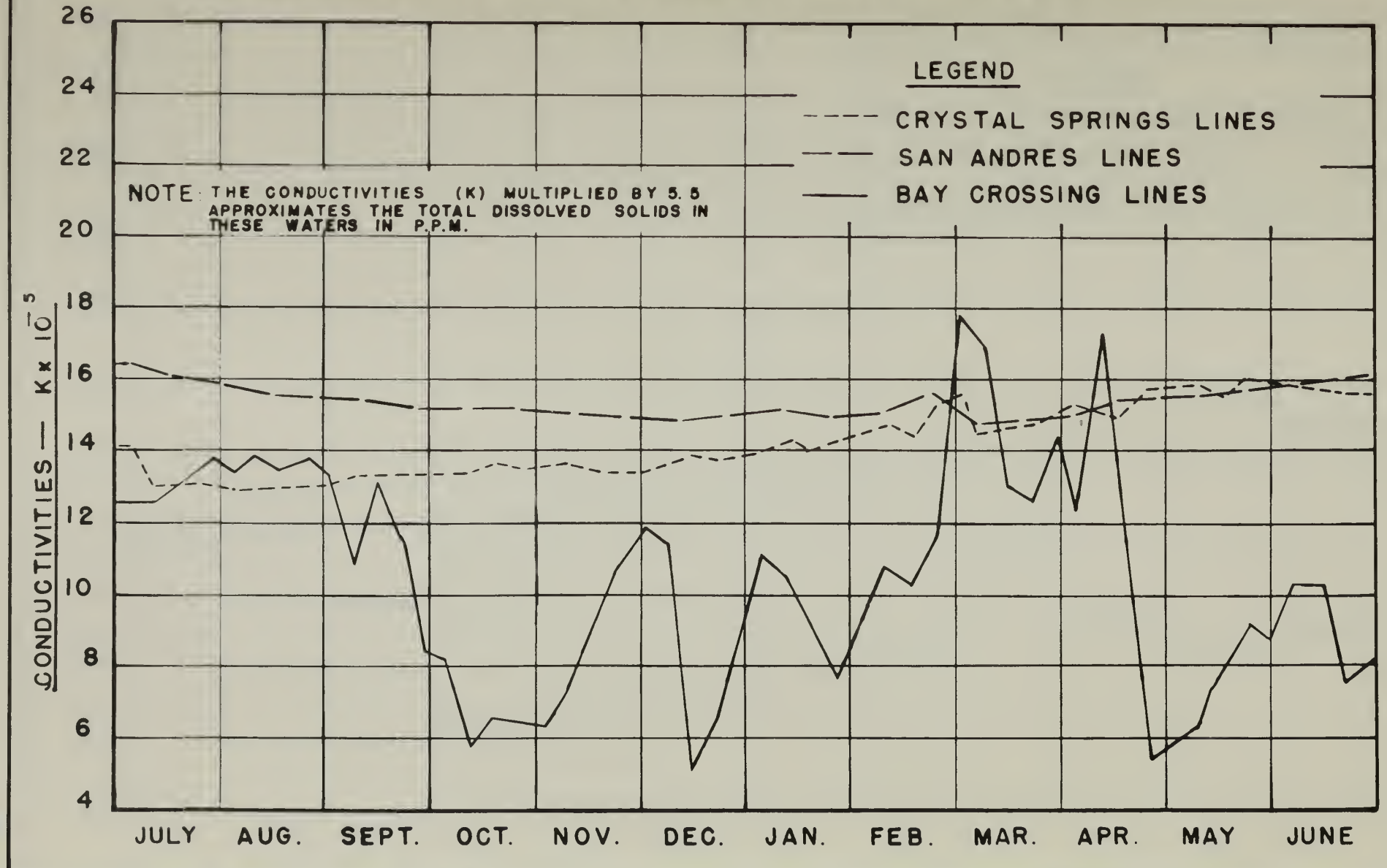
BACTERIOLOGICAL ANALYSES

ANNUAL SUMMARY OF RESULTS

TREATED WATERS

Origin of Sample	Agar Count No. per ml			Coliform Group 10 ml Portions			Samples		
	Min.	Max.	Av.	No. Exam.	No. Pos.	% Pos. Yr.	No. Exam.	No. Pos.	% Pos. Yr.
Alameda E. Portal	1	10	2	255	1	0.38	51	0	0
Calaveras Pipe Line	1	5	2	145	0	0	29	0	0
Sunol Town Supply	1	44	3	520	7	1.35	104	2	1.92
Sunol Aqueduct	1	46	3	260	0	0	52	0	0
Irvington Pump Station	1	30	4	50	0	0	10	0	0
Bay Crossing Lines	1	216	3	1330	0	0	266	0	0
Palo Alto Pipe Line	1	800	10	780	1	0.13	156	0	0
Crystal Springs Line #1	1	96	3	1570	25	1.59	314	4	1.28
Crystal Springs Line #2	1	175	2	1590	8	0.50	318	1	0.31
San Andres Line #1	1	120	2	1565	17	1.08	313	2	0.64
San Andres Line #2	1	50	2	1565	11	0.70	313	0	0.0
San Andres Line #3	1	33	2	520	8	1.54	104	1	0.96
Ala. Line, Belmont	1	310	13	525	8	1.52	105	1	0.95
S.F. Airport	1	40	3	575	13	2.26	115	0	0
U.M. Inlet #1	1	540	14	515	16	3.12	103	1	0.97
U.M. Inlet #2	1	700	13	530	1	0.19	106	0	0
U.M.Outlet #1	1	40	2	525	1	0.19	105	0	0
U.M. Outlet #2	1	120	3	530	3	0.57	106	0	0
U.M. System #1	1	270	13	635	35	5.5	127	6	4.72
U.M. System #2	1	2100	54	515	6	1.16	103	1	0.97
U.M. System #3	1	420	25	530	9	1.7	106	2	1.9
U.M. System #4	1	200	10	520	22	4.26	104	3	2.88
U.M. System #5	1	200	9	525	23	4.38	105	2	1.91
U.M. System #6	1	2000	74	540	38	7.02	108	5	4.65
Francisco Outlet	1	180	8	100	5	5.0	25	1	4.0
College Hill Trans. Sys.	1	140	8	550	36	6.55	110	5	4.55
College Hill Outlet	1	350	5	525	5	0.95	105	1	0.95
College Hill Sys. #1	1	17	1	530	7	1.13	106	0	0
College Hill Sys. #2	1	48	3	545	26	4.78	109	3	2.75
Sunset Trans. Sys.	1	440	18	560	30	5.36	112	5	4.46
Sunset Inlet	1	300	17	535	12	2.25	107	1	0.94
Sunset Outlet	1	15	2	535	7	1.31	107	0	0
Sunset System #1	1	410	7	555	38	6.9	111	3	2.7
Sunset System #2	1	13	2	535	2	0.37	107	0	0
Portrero Hts. System	1	28	4	535	82	15.4	107	10	9.26
Merced Manor Res.	1	1500	34	530	26	4.90	106	3	2.83
Merced Manor System	1	700	18	550	37	6.52	110	4	3.63
Stanford Hts. Res.	1	60	5	545	29	5.32	109	3	2.76
Stanford Hts.Sys. #1	1	19	2	595	34	5.22	119	5	4.2
Stanford Hts.Sys. #2	1	15	1	530	18	4.0	106	3	2.8
Lombard System	1	500	6	525	24	4.57	105	3	2.86
Forest Hill Suction	1	38	3	515	16	3.1	103	2	1.94

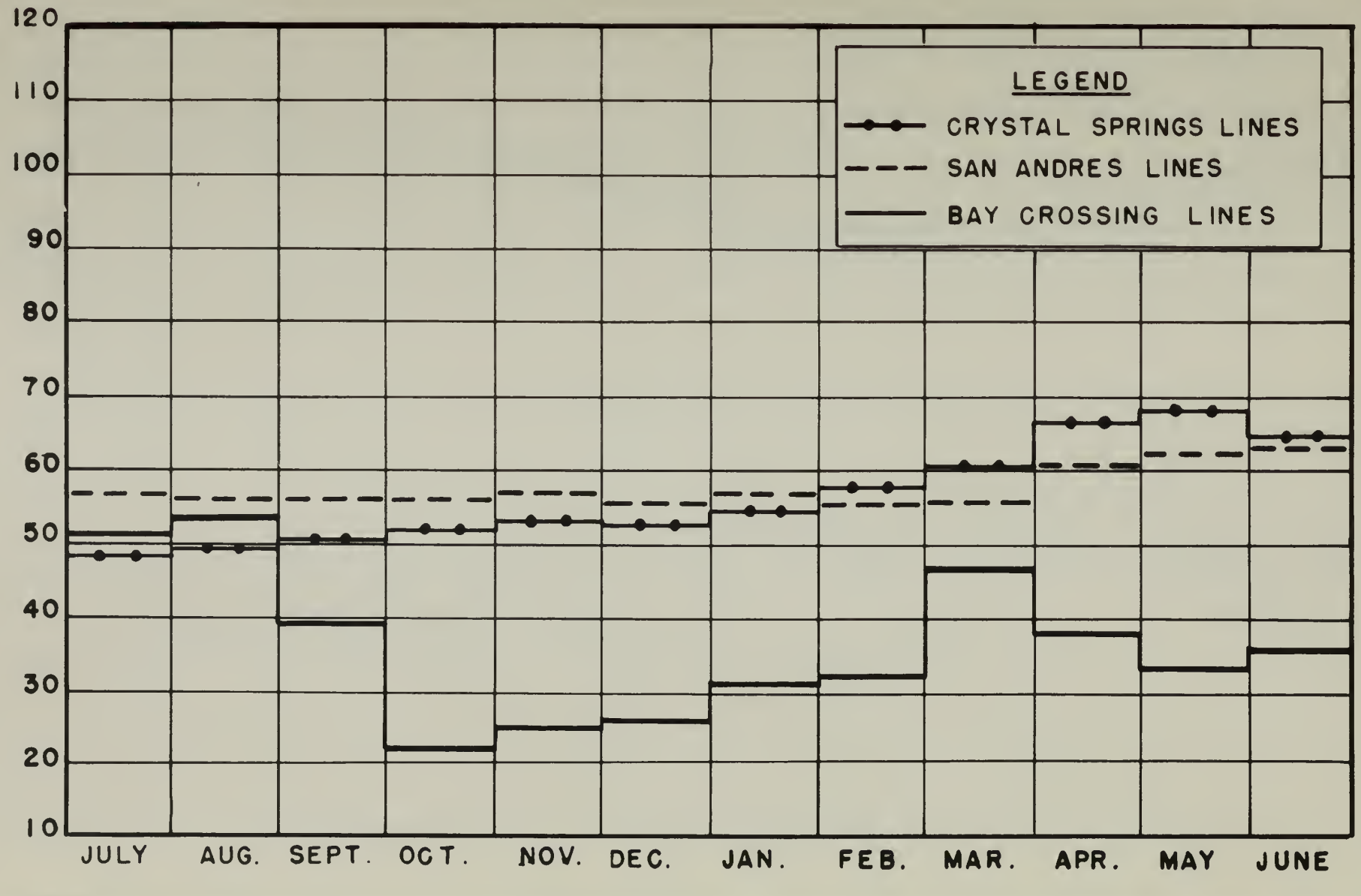
ELECTRICAL CONDUCTIVITIES OF WATER DELIVERED TO CONSUMERS 1951—1952



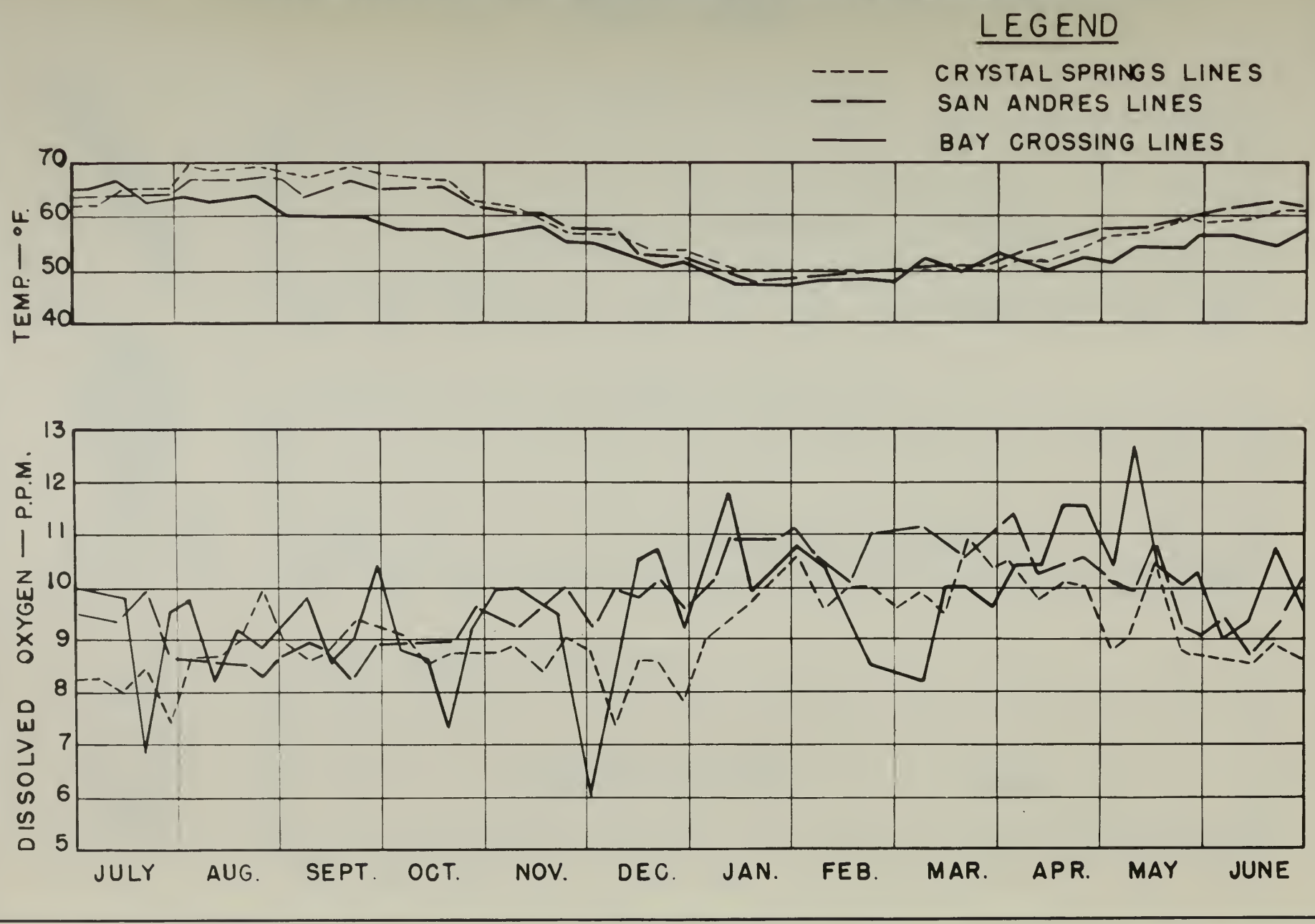
HARDNESS OF WATER

DELIVERED TO CONSUMERS 1951 — 1952

(MONTHLY AVERAGES — PARTS PER MILLION AS $CACO_3$)



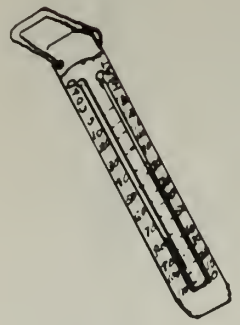
TEMPERATURE AND DISSOLVED OXYGEN OF WATER DELIVERED TO CONSUMERS 1951 — 1952

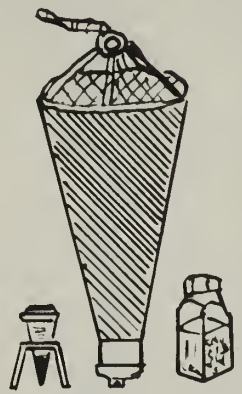


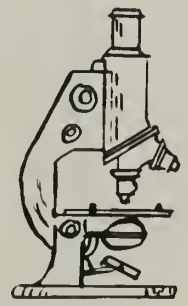
PENINSULA RESERVOIRS

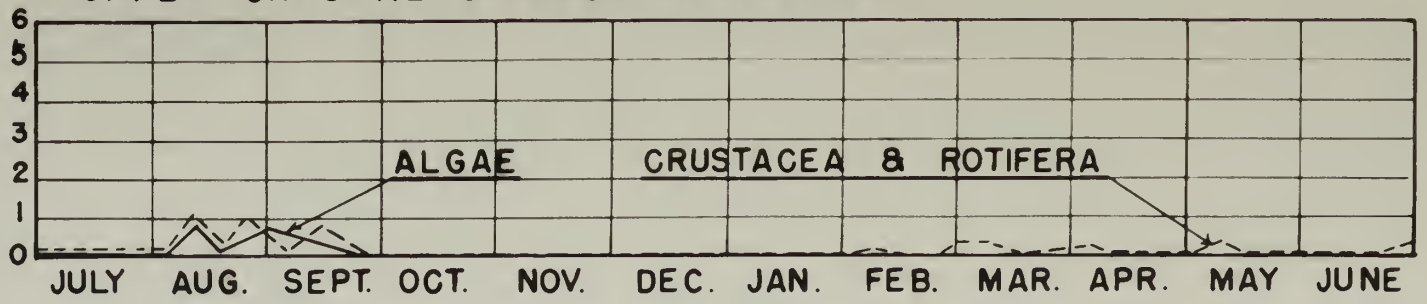
MICROSCOPICAL ORGANISMS — C.C. PER CU. METER

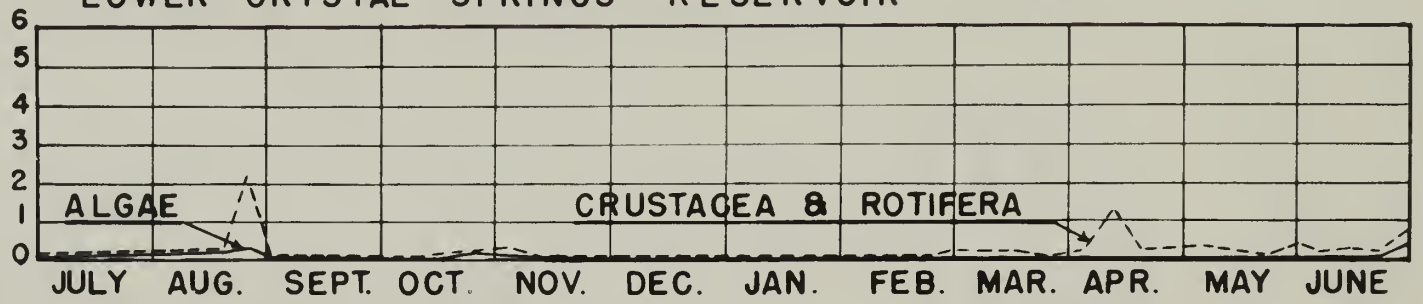
1951 — 1952

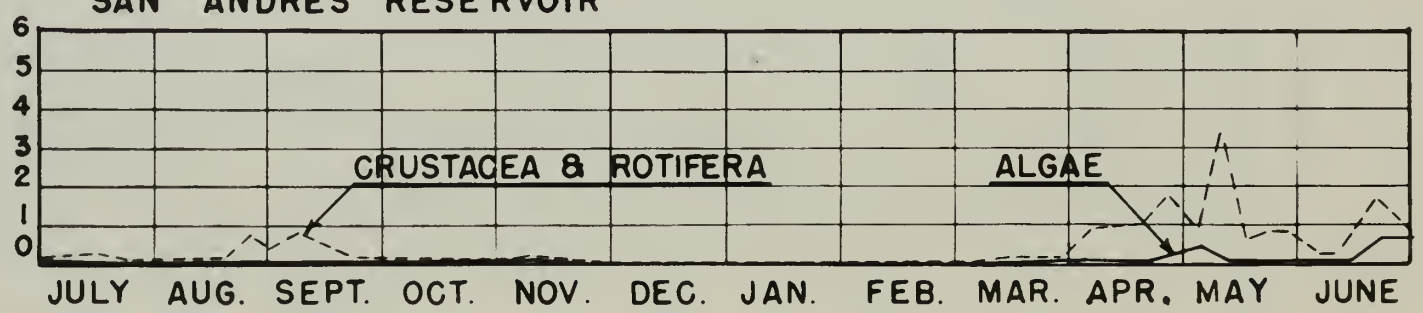






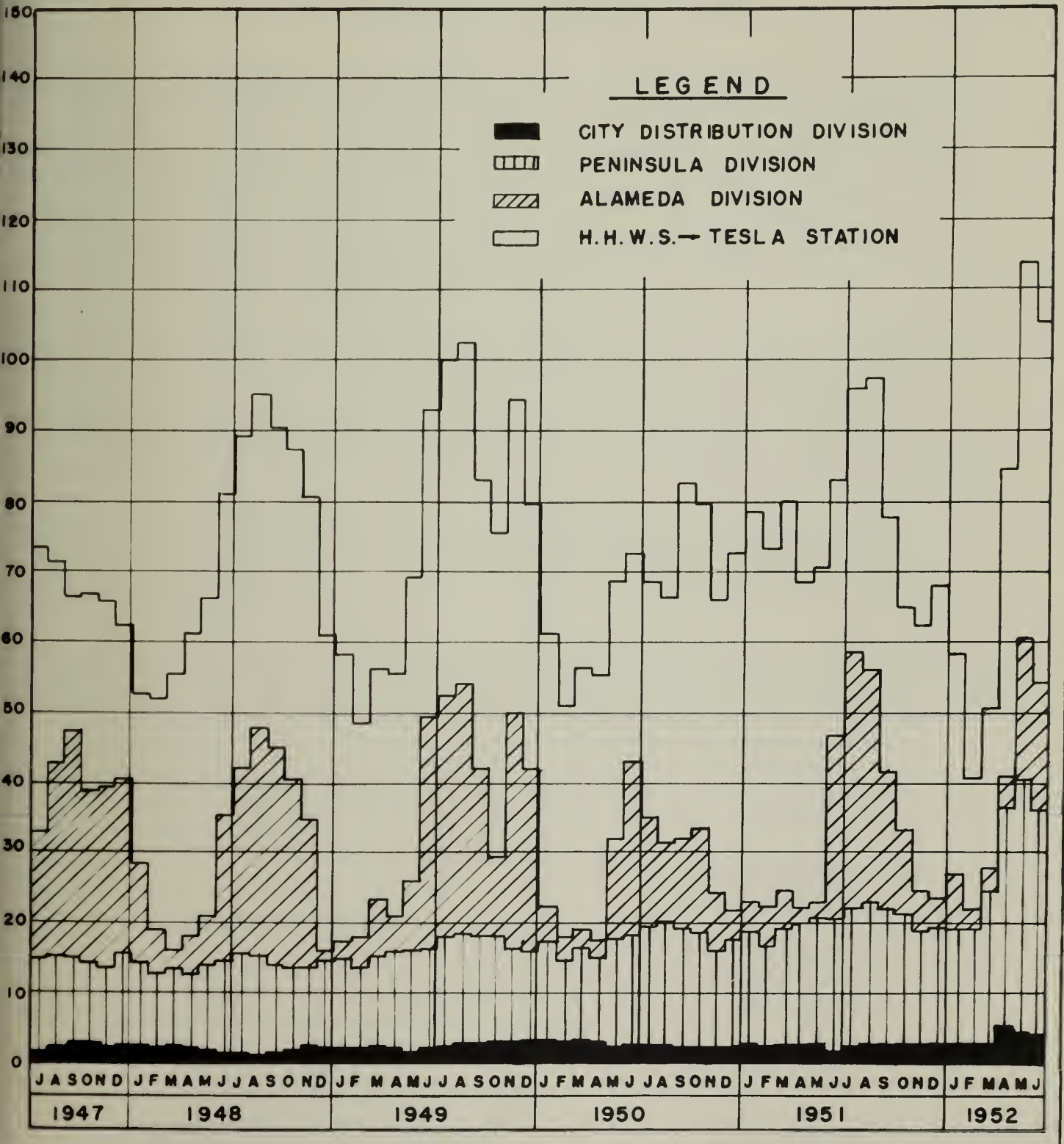






MONTHLY CHLORINE USAGE IN WATER SUPPLY SYSTEM

(PAST FIVE YEAR COMPARISON)



ENGINEERING DIVISION

The work of the Engineering Division, during the past year, was primarily concerned with the preparation of plans, specifications, engineering studies, reports, estimates of cost, inspection of construction and in some cases the supervision of maintenance work. Various other services of a continuing nature were performed during the year including the preparation of property descriptions, revocable permit and the stating of conditions for land transactions; the maintenance of maps and records and the furnishing of photostatic and photographic service to all city owned utilities.

Plans and specifications were prepared for 41 formal and 4 informal Water Department contracts for a total estimated construction cost of $3,073,450. Engineering supervision and inspection services were provided for $2,370,000 worth of contract work actually completed during the year. Of the 41 formal contracts for which plans and specifications were prepared during the fiscal year 1951-52, 29 were for water main extensions.

Five of these extensions were awarded to the Water Department in an amount totaling $26,336.30, and were completed during the year at a cost of $21,575.85., or $4,760.45 less than the bid price.

A survey of proposed capital improvements to the water system was made, in connection with budgetary and city planning purposes, for the period beginning July 1, 1952, and ending June 30, 1958. Water Department requirements for this period were estimated at some $40,700,000.00 worth of improvements having varying degrees of urgency. A number of the more essential projects programed to start in the near future and for which funds are needed in whole or in part include the following projects:

Project	Total Estimated Cost July 1, 1952 to June 30, 1958
Cathodic Electrolysis Erosion Protection	$ 120,000.00
Balboa Reservoir - Both Basins	5,700,000.00
Summit District Feeder Mains	126,000.00
Relocation of Crystal Springs Pipe Lines, Brisbane	532,000.00
Corporation Yard	1,180,000.00
Replace Portions of Crystal Springs 44-Inch Pipe Line	5,200,000.00
Crystal Springs Aqueduct	1,512,000.00
San Andres Pumps and Force Mains	300,000.00

Construction of Bay Division Pipe Line No. 3 was completed on May 26, 1952 and was in service for the balance of the year. The lengths, sizes and types of pipe in this pipe line are:

78-inch reinforced concrete pipe	43,184'
78-inch steel pipe and specials	1,908'
72-inch I.D. cement lined and coated steel pipe	90,512'
90-inch pipe and tunnel section	917'
72-inch reinforced concrete pipe	36,591'
72-inch steel pipe and specials	5,725'
Tapers, valves and Venturi meters	271'
TOTAL	179,108' or 33.94 miles

Contract work covering the lining and roofing of Sutro Reservoir was completed on February 29, 1952 by Granite Construction Company. At the end of the fiscal year the reservoir together with its supply and feeder mains, was being readied for service.

A study of electrolytic action on the Department's steel plate transmission pipe lines is in progress and cathodic protection installations are being made to mitigate corrosion due to that action. It is believed this work will need to be carried on continuously or these pipe lines will not serve their economical life.

Contract for the construction of Lake Merced Pumping Station was awarded to Rothschild, Raffin and Weirick and Pacific Bridge Company on December 10, 1951. Due to area wide strikes in building crafts, construction was behind schedule at the end of the fiscal year.

Plans and specifications for the Burlingame to Millbrae portion of the 60-Inch Sunset Supply Line were completed and filed with the Public Utilities Commission for approval. The plans and specifications for the Millbrae to Baden section of this pipe line were 70% completed on June 30, 1952.

As a result of extensive studies a contract was entered into for pressure grouting in the west abutment of Calaveras Dam on November 5, 1951. This work was completed April 15, 1952 and resulted in a lower flow of water into the 8 foot tunnel than had been recorded for similar elevations of reservoir water and amount of rainfall. Before determination of the effectiveness can be made, however, additional measurements of flow must be made over a period of time.

A brief description of work performed under contract during the fiscal year follows:

FORMAL CONTRACTS:

1. Additions to City Pipe System

In all contracts involving the laying of cast iron or transite pipe or the installation of services, the Contractor is required to obtain the pipe and fittings from the Water Department. The cost of this material, of connections made by the department's forces, and of engineering and inspection are included in the following stated contract costs. In cases where the Water Department acts as the Contractor the cost given is the actual cost of the completed work.

Extensions and replacements to the Department's distribution grid system are made under contract, the Department furnishing all necessary pipe, fittings and services material. The value of these items, and the engineering and inspection costs are set up in the contract bid sheets in a manner so that the "bid total" includes the cost of furnished items, engineering and inspection, and the summation represents the total cost to the Department for the facility. On most of this class of work the Water Department submits a bid and does the work if its bid is the lowest of those received.

Contract No. 550R - For the laying of 1053 feet of 12-inch cast iron main in Bayshore Industrial Development. The contract was awarded to F. T. Fairey on May 28, 1951, and completed on July 2, 1951 at a cost of $9,035.00.

Contract No. 556 - For the laying of 910 feet of 36-inch steel main in Division, Tenth and Bryant Streets. The contract was awarded to Arthur Wallgren on November 27, 1950, and completed on July 13, 1951 at a cost of $39,591.85.

Contract No. 564 - For the installation of 64 services and the laying of 149 feet of 6-inch and 857 feet of 8-inch and 1,836 feet of 12-inch cast iron mains in Midtown Terrace and Portola Drive. The contract was awarded to H. T. Treacy on January 22, 1951, and completed on October 15, 1951 at a cost of $22,525.25.

Contract No. 565 - For the installation of 67 services and the laying of 644 feet of 6-inch and 451 feet of 8-inch cast iron mains in Bright and Shields Streets. The contract was awarded to Fred T. Fairey on January 29, 1951, and completed on September 25, 1951 at a cost of $5,510.14.

Contract No. 566 - For the installation of 94 services and the laying of 670 feet of 6-inch and 1,300 feet of 8-inch cast iron mains in Lawton Heights Subdivision. The contract was awarded to Fred T. Fairey on January 22, 1951 at an estimated bid price of $9,405.10. On June 30, 1952 work had not been started on this contract.

Contract No. 567 - For the installation of 17 services and the laying of 579 feet of 6-inch cast iron main in Harkness Avenue between Alder and Sparta Streets. The contract was awarded to H. T. Treacy on February 26, 1951, and completed on May 1, 1952 at a cost of $3,422.47.

Contract No. 571 - For the laying of 12 feet of 8-inch and 2,050 feet of 12-inch cast iron mains in 34th Avenue between Balboa and Clement Streets. The contract was awarded to F. T. Fairey on July 30, 1951, and completed on September 12, 1951 at a cost of $19,647.20.

Contract No. 575 - For the laying of 1,276 feet of 8-inch cast iron main in Bay Shore Boulevard between Industrial and Augusta Streets. The contract was awarded to E. J. Treacy on May 21, 1951, and completed on July 13, 1951 at a cost of $7,007.57.

Contract No. 577 - For the installation of 65 services and the laying of 1,000 feet of 6-inch and 1,009 feet of 8-inch transite mains in Olmstead, Bowdoin and Colby Streets. The contract was awarded to Fred T. Fairey on May 28, 1951, and completed on October 1, 1951 at a cost of $8,633.51.

Contract No. 579 - For the laying of 7,326 feet of 36-inch steel Sutro Reservoir Supply main. The contract was awarded to M and K Corporation on July 9, 1951, and completed on February 27, 1952 at a cost of $245,755.29.

Contract No. 580 - For the laying of 164 feet of 12-inch cast iron main in Corbett Avenue south of Romain Street. The contract was awarded to San Francisco Water Department on July 9, 1951, and completed on August 6, 1951 at a cost of $2,464.73.

Contract No. 582 - For the installation of 20 services and the laying of 859 feet of 6-inch cast iron mains in Goettingen Street between Wilde and Campbell Avenues and in Lansing Street west of First Street. The contract was awarded to San Francisco Water Department on July 30, 1951, and completed on October 30, 1951 at a cost of $5,827.62.

Contract No. 584 - For the laying of 1,074 feet of 8-inch transite main in Cora and Allan Streets south of Sunnydale Avenue. The contract was awarded to F. T. Fairey on July 23, 1951, and completed on August 8, 1951 at a cost of $5,362.63.

Contract No. 585 - For the laying of 198 feet of 8-inch cast iron main in Masonic Avenue north of O'Farrell Street. The contract was awarded to E. J. Treacy on August 13, 1951, and completed on September 13, 1951 at a cost of $2,534.87.

Contract No. 587 - For the laying of 145 feet of 12-inch cast iron main in Mason Street north and south of Broadway Street. The contract was awarded to E. J. Treacy on August 13, 1951, and completed on September 28, 1951 at a cost of $3,149.38.

Contract No. 589 - For the installation of 1 service and the laying of 1,273 feet of 8-inch and 701 feet of 12-inch cast iron mains in Third, Marin, Michigan and Army Streets. The contract was awarded to Fred T. Fairey on September 11, 1951, and completed on February 14, 1952 at a cost of $15,143.76.

Contract No. 591 - For the installation of 40 services and the laying of 452 feet of 6-inch and 234 feet of 8-inch cast iron and 3,488 feet of 8-inch transite and 2,242 feet of 12-inch cast iron mains in Stonestown Subdivision. The contract was awarded to Fred T. Fairey on October 1, 1951, and completed January 22, 1952 at a cost of $48,909.06.

Contract No. 592 - For the installation of 111 services and the laying of 1,700 feet of 6-inch transite mains in Dartmouth and in Hamilton Streets. The contract was awarded to Fred T.Fairey on December 26, 1951 at an estimated bid price of $10,269.05. On June 30, 1952 the contract was 47 per cent completed.

Contract No. 593 - For the laying of 31 feet of 8-inch, 3,924 feet of 12-inch and 4,512 feet of 16-inch cast iron mains in Sunset District from Taraval Street and Montalvo Avenue to Moraga Street and 16th Avenue. The contract was awarded to Barrett and Hilp on October 29, 1951, and completed on February 14, 1952 at a cost of $77,272.21.

Contract No. 594 - For the installation of 30 services and the laying of 1,144 feet of 6-inch cast iron mains in Broadway Street from Mason to Taylor Streets and from Larkin to Leavinworth Streets. The contract was awarded to San Francisco Water Department on October 29, 1951, and completed on March 5, 1952 at a cost of $4,899.38.

Contract No. 596 - For the removal of 874 feet of 30-inch cast iron pipe from Locksley Avenue between Lawton and Moraga Street. The contract was awarded to Eaton and Smith on November 13,1951, and completed on January 10, 1952 at a cost of $3,030.47.

Contract No. 597 - For the laying of 5,079 feet of 16-inch cast iron mains in 15th and 17th Avenues from Portola Drive to Taraval Street and in Merced Avenue from Kensington Way to Laguna Honda

Boulevard. The contract was awarded to Michael Murphy, Jr., on December 26, 1951, and completed on April 23, 1952 at a cost of $72,302.41.

Contract No. 598 - For the installation of 52 services and the laying of 387 feet of 4-inch cast iron and 2,836 feet of 6-inch transite mains in Monterey Boulevard between San Aleso and Ridgeway Avenues. The contract was awarded to Michael Murphy, Jr., on November 5, 1951, and completed on June 5, 1952 at a cost of $15,508.61.

Contract No. 599 - For the installation of 94 services and the laying of 1,600 feet of 6-inch cast iron mains in Molimo Drive and in Foerster Street. The contract was awarded to H. T.Treacy on December 3, 1951 at an estimated bid price of $8,181.00. On June 30, 1952 the work was 67 per cent completed.

Contract No. 600 - For the installation of 32 services and the laying of 1,700 feet of 6-inch and 600 feet of 12-inch cast iron mains in Midtown Terrace No. 2. The contract was awarded to Harold T. Treacy on January 21, 1952 at an estimated bid price of $13,514.10. On June 30, 1952 the work was 40 per cent completed.

Contract No. 601 - For the laying of 194 feet of 8-inch cast iron main in Harrison Street north of 20th Street. The contract was awarded to San Francisco Water Department on January 7, 1952, and completed on February 18, 1952 at a cost of $2,094.39.

Contract No. 602R - For the laying of 9,100 feet of 30-inch steel Sutro main from 7th and Clarendon Avenues to Stanyan and Frederick Streets. The contract was awarded to M & K Corporation and Associated Pipeline Welders, Inc., Joint Venture, on April 14, 1952 at an estimated bid price of $238,944.00. On June 30, 1952 work had not started on this contract.

Contract No. 603 - For the laying of 1,855 feet of 16-inch cast iron mains in Sadowa Street from Capitol to Plymouth Avenues and in Holloway Avenue from Plymouth to Harold Avenues. The contract was awarded to Associated Pipeline Welders, Inc. On March 3,1952, and completed on May 9, 1952 at a cost of $30,579.98.

Contract No. 605 - For the laying of 513 feet of 8-inch cast iron main in private property east of 23rd Street. The contract was awarded to San Francisco Water Department on February 25, 1952, and completed on April 11, 1952 at a cost of $6,289.73.

Contract No. 606 - For the relocation of 700 feet of 6-inch and 1,170 feet of 8-inch cast iron mains in 13th Street between Mission and Harrison Streets. The contract was awarded to

San Francisco Water Department on March 10, 1952 at an estimated bid price of $15,566.50. On June 30, 1952 work had not been started on this contract.

Contract No. 608 - For the laying of 270 feet of 8-inch cast iron main in California Street between Stockton Street and Grant Avenue. The contract was awarded to San Francisco Water Department on April 21, 1952 at an estimated bid price of $3,301.95. On June 30, 1952 work had not been started on this contract.

Contract No. 609 - For the installation of 30 services and the laying of 1,500 feet of 6-inch cast iron mains in Broadway Street from Larkin Street to Cyrus Place and in Filbert Street from Octavia to Gough Streets. The contract was awarded to E. J. Treacy on May 5, 1952 at an estimated bid price of $8,191.00. On June 30, 1952 the work was 92 per cent completed.

Contract No. 615 - For the laying of 100 feet of 4-inch, 60 feet of 12-inch and 6,500 feet of 16-inch cast iron mains from Harold and Bruce Avenues to Rolph and Athens Streets. The contract was awarded to F. T. Fairey on May 12, 1952 at an estimated bid price of $90,178.00. On June 30, 1952 the work was 18 per cent completed.

Contract No. 616 - For the laying of 700 feet of 20-inch and 12,900 feet of 24-inch steel mains from Frederick and Stanyan Streets to Clay and Lyon Streets and in Frederick Street from Stanyan to Downey Streets. The contract was awarded to M & K Corporation and Associated Pipeline Welders on June 23, 1952 at an estimated bid price of $285,261.00. On June 30, 1952 work had not been started on this contract.

Contract No. 620 - For the installation of 10 services and the laying of 100 feet of 6-inch and 720 feet of 8-inch cast iron mains in Sargent Street between Vernon and Victoria Streets. The contract was awarded to Fred T. Fairey on May 26, 1952 at an estimated bid price of $5,393.15. On June 30, 1952 the work was 80 per cent completed.

Contract No. 621 - For the installation of 22 services and the laying of 710 feet of 6-inch cast iron main in Campbell Avenue between Delta and Elliott Streets. The contract was awarded to Bernal Construction Company on June 2, 1952 at an estimated bid price of $3,654.55. On June 30, 1952 the work was 67 percent completed.

2. Additions to Supply and Transmission Facilities:

Contract No. 524 - For the construction of Bay Division Pipeline No. 3 from Irvington Portal in Alameda County to the east portal of Pulgas Tunnel in San Mateo County, California, a distance of 179,108 feet or 33.94 miles. This was awarded in two contracts on November 23, 1949, Sections AC were awarded to United Concrete Pipe Corporation and completed on May 26, 1952 at a contract cost of $4,239,272.35. Section B was awarded to Artukovich Brothers and Steve P. Rados, Joint Venture and completed on September 27, 1951 at a contract cost of $4,076,373.43.

Contract No. 546 - For the construction of Bay Crossing Pipelines No. 1 and No. 2 Cross Connections at Newark and Redwood City. The contract was awarded to E. T. Haas Company on February 4, 1952 at an estimated bid price of $19,700.00. On June 30, 1952 , field work had not been started on this contract.

3. Miscellaneous Contracts:

Contract No. 536 - For the construction of a concrete lining and roof for Sutro Reservoir. The contract was awarded to Granite Construction Company on December 18, 1950, and completed on February 29, 1952 at a cost of $996,037.65.

Contract No. 554 - For the construction of a chlorination plant at San Andres Outlet No. 1. The contract was awarded to Wenrick and Associates on October 2, 1950, and completed on November 27, 1951 at a cost of $24,549.21.

Contract No. 574 - For the drilling and grouting in west abutment of Calaveras Dam, Alameda County. The contract was awarded to L. L. Jeffries on November 5, 1951, and completed on April 15, 1952 at a cost of $58,421.60.

Contract No. 576 - For the repavement of street and sidewalk openings made by the Department for installation or repair work during the fiscal year 1951-52. The contract was awarded to the Pacific Pavement Company, Ltd., on May 28, 1951, and terminated June 30, 1952 at a cost of $70,401.10. Repavement over trenches opened by other contractors, performing work for the Department, is not included under this annual paving contract, as each contractor is required to provide his own paving.

Contract No. 581 - For the surfacing of roadways at Millbrae Headquarters. The contract was awarded to Ben Blair on June 25, 1951, and completed on August 28, 1951 at a cost of $3,967.70.

Contract No. 583 - For the construction of College Hill Chlorinating Station. The contract was awarded to R. Madsen on August 13, 1951,and completed on December 18, 1951 at a cost of $6,611.82.

Contract No. 588 - For the construction of the Lake Merced Pumping Station. The contract was awarded to Rothschild, Raffin and Weirick and Pacific Bridge Company, Joint Venture, on December 10, 1951 at an estimated bid price of $1,064,570.00. On June 30, 1952 the work was 2% completed.

Contract No. 590 - For the gathering and delivering of the 1951 Walnut crop from the Sunol Walnut Orchard. The contract was awarded to John Helzer on September 11, 1951, and completed on November 12, 1951 at a cost of $8,958.43.

Contract No. 612 - For the controlling and destroying of Weeds on certain properties of the San Francisco Water Department in San Mateo County. The contract was awarded to Alan F. Howe on April 14, 1952, and completed on June 2, 1952 at a cost of $3,362.65.

Contract No. 613 - For the construction of Alemany Fluoride Treatment Plant in San Francisco and San Andres Outlet No. 2 Fluoride Treatment Plant in San Mateo County. The contract was awarded to Roy Madsen on April 28, 1952 at an estimated bid price of $20,722.50. On June 30, 1952 the work was 65 per cent completed.

4. Informal Contracts:

The following work involving amounts of less than $2000 each, was done under a service order issued after posting a bid invitation and receiving informal bids.

Informal Bid No. I-97 - For painting fire escape, flashing and parts of third and fourth floors at Water Department Building, 425 Mason Street. Work order was issued to Russell-Hinton Company on November 16, 1951, and work was completed at a cost of $632.75.

Informal Bid No. I-98 - For paving a portion of the San Francisco Water Department Yard at 639 Bryant Street. Work order was issued to Pacific Pavements Company, Ltd., on January 2, 1951, and work was completed at a cost of $1,859.55.

Informal Bid No. I-99 - For the installation of partitions and doors on the fourth, sixth and seventh floors at the Water Department Building, 425 Mason Street. Work order was issued to Wm. McIntosh and Son on February 6, 1952, and completed at a cost of $1,477.00.

Informal Bid No. I-100 - For rewiring at the Water Department Building 425 Mason Street. Work order was issued to Republic Electric Company on February 26, 1952, and completed the work at a cost of $1,950.00.

AGRICULTURAL DIVISION

On July 1, 1952 the area owned in fee was 63,281.2 acres which was 25.2 acres less than the acreage shown in the annual report of June 30, 1951. This increase is as follows:

	Acres	Acres
PURCHASES:		
Land for Bay Division Pipe Line #3		6.947
Land for Sunset Supply Line		.046
SALES:		
Parcel #53,54 and 57 Portion, Alameda County Lands	9.732	
#65 Sunol and San Antonio Lands	1.088	
#69 Pleasanton Lands	21.086	
#31 San Miquel Lots San Francisco	0.325	
	32.231	6.993
Net decrease in Acres	25.238	

Kind of Lease	Leased Acreage	No. of Leases	Income
AGRICULTURAL:			
Cattle	29,718.00	15	$100,610.92
Flat Rate	1,804.72	36	27,508.24
Share Crop	3,558.00	11	16,610.19
NON-AGRICULTURAL:			
Flat Rates	127.97	44	10,816.47
Olympic Club Golf Course	17.35	1	2,400.00
Royalties - Rock Quarry	24.50	1	30,537.51
Royalties - Crystal Springs Golf Course	172.53	1	14,350.10
Taxes Paid by Tenants			1,745.57
	35,423.07	109	204,579.00
WALNUT ORCHARD:			
Sale of Walnuts	100	-0-	$ 50,394.52
	35,523.07	109	$254,973.52

GENERAL:

Sale of the Vallejo's Mill Tract consisting of 28 small non-agricultural leases for the total sum of $29,400.00, resulted in a reduction in the actual number of leases. These paid only nominal rentals.

An equal number of leases on small parcels which also paid nominal rentals were transferred to Revocable Permits in order to reduce paper work and eliminate the necessity of costly periodic renewals. These parcels are on rights-of-way and in isolated areas and otherwise are not considered as regular leases.

Minor leases held by some tenants adjacent to their major lease were consolidated into a single lease, while various agricultural leases in certain areas were transformed into commercial leases paying higher rentals.

In addition, at least twelve former agricultural leases in Millbrae and Daly City were vacated by the Public Utilities Commission in order to negotiate commercial leases at much higher rentals because of changes caused by subdivision development.

Since October 1, 1951 , a general transformation has taken place on a large scale program of renegotiation of leases to place them on a more businesslike basis with greatly increased income to the City and closer supervision.

These increases will not show until the next fiscal year when the full force of the total increases in revenues will be reflected.

PROPOSITION "B":

Proposition "B" on the June 1952 ballot which would have placed the leasing of non-agricultural lands by the Director of Property and the approving power in the hands of the Board of Supervisors rather than by the Public Utilities Commission was defeated by the voters for the second time.

The feeling of this Division which carried out a successful dignified campaign was that there would have been too much division of authority and that the operating forces of the Water Department are in a better position to manage and lease their own lands. The record since October 1, 1951 is proof of this statement and was the only basis for the newspaper support and that of the various major endorsing groups in recommending a NO vote.

LEASES:

During the year 1951, the Public Utilities Commission approved only two leases. During the last eight month period to June 30, 1952, a total of 37 leases have been approved, all at higher rentals with lease period increases totaling $147,188.70.

CATTLE LEASES:

During the year 1951/52 there were 15 cattle leases with a total area of 29,718 acres. Rentals increased sharply because of the great increase in the price of beef which brought the percentage of increase over the basic rental to 305%, a record high. It is expected that prices of beef will drop somewhat to a lower level.

Most of the cattle leases run for a period of five years generally commencing on November 1. Rentals are based on a "sliding scale" according to the sale price of cattle during specified periods in each year.

This method of basing rentals on a sliding scale is in accord with our established practice, the cattlemen paying a higher rental when prices are high and a correspondingly lower rental when lower prices prevail. This is generally acceptable as a means of arriving at a fair annual rental.

A total of five cattle leases were renegotiated during the fiscal year for a 7 year period with an increased annual rental totaling $12,723.16. However, this increase will not be reflected until the next year.

Basis of renegotiations was the improvement of existing ranges, many of them in very poor condition due to years of constant feeding and lack of a controlled program.

These leases were able to qualify under the Agricultural Conservation Program which with government financial assistance will make possible a total of 22 new earthen dams or reservoirs, development of numerous springs, a reseeding and controlled grazing schedule, new roads and fences and other conservation and improvement measures.

Rainfall was plentiful and a good growth of grass caused great satisfaction to the cattlemen.

SHARE CROPS:

Eleven share crop leases were in operation covering 3558 acres and yielded a total of $16,610.19, or an increase of $4,419.00 over the previous year. Some of these leases paid a cash rental in addition to a share of crops. Principal crops raised were oats, barley, wheat, irrigated pasture, alfalfa hay and barley and wheat grain. Prices per ton were higher than last year as was production per acre. One unprofitable share crop lease in San Mateo County was converted into a grazing lease at a higher income per acre.

At least two more share crop leases will undergo the same process by next year in order to produce more revenue. One other lease will be turned into a better paying irrigated pasture that will increase the income on this lease by 400%.

In the future there will be fewer share crops in total number, which will be offset by a higher income on existing share crops by means of raising more profitable crops, securing better farmers and converting some present pasture land into good farming land.

SPECIALTY CROPS:

Two leases covering 130 acres of strawberries at Sunol have become the most profitable per acre income averaging $85.00 per acre, which formerly brought about $9.00 per acre under dry crop farming.

The 640 acre lease at Pleasanton which contains over 500 acres of roses has proved to be a profitable venture both for the City and the tenant.

NON-AGRICULTURAL LEASES:

This category consists of 2 golf courses, 2 lumberyards, 1 rock quarry, a pet shop, 2 nurseries, numerous picnic grounds, trailer courts and many other types of business for a total of 41 leases.

This group will continue to grow, particularly in San Mateo County because of the changeover from agriculture to residential development.

The greatest transformation has taken place in Niles Canyon where many picnic ground leases existed on a month-to-month basis paying ridiculously low rents. These leases have been renegotiated at considerably higher rentals (these increases will

not be reflected until next year) and average three years or more.

Under this program the tenants have been given the protection of a longer lease. They are now in the process of investing money for improvements which upon lease expiration will result in still higher rentals. As an example, one lease formerly paying $19.00 per year was renegotiated for $1100.00 per year showing a typical case of the program mentioned above.

RENEGOTIATED LEASES:

Last 8 months -(Oct. 1, 1951 to June 30, 1952) showing large increases in revenue.

	Former Annual	New Annual	Annual Increase	Increase Lease Period
11 non-agricultural	$ 873.50	$ 7,008.00	$ 6,134.50	$ 34,820.50
20 agricultural	55,576.00	72,709.00	17,322.60	112,368.20
	$56,449.50	$79,717.00	$23,457.10	$147,188.70

About 12 leases now under renegotiation will greatly increase this amount.

In addition to these, 11 billboards on Water Department property, formerly bringing a total of $280.00 per year, were renegotiated to $1092.00, or an increase of $834.00 per year.

WALNUT ORCHARD:

The 1951 harvest totaled over 92 tons of walnuts which brought in a gross revenue of $50,394.52. John Helzer was awarded the harvesting contract and performed an efficient job and under favorable weather conditions.

The City holds membership in the Walnut Growers' Association at Walnut Creek where walnuts are delivered after hulling and drying is done at the City's dehydrator at Sunol.

A sprinkler system was added to the underground irrigation system thereby giving the orchard complete irrigation coverage, of which about 40 acres of unleveled orchard now receives regular irrigation.

A good cover crop of mustard, timely spraying and systematic pruning, disease control and dusting for aphids, together with a thorough job of cultivation, constituted the major operations performed by this Department.

The 40 acres of new orchard produced a premature crop of 500 lbs. It is not expected to produce its first commercial crop until 1953. Otherwise, the trees are in healthy condition and are receiving fine care. The major problem in this area is the control of wild morning glory necessitating applications of 2-4-D and constant control methods.

REVOCABLE PERMITS:

Over 400 Revocable Permits are under the supervision of this Division covering right of way and other properties in four counties. Some of these Permits produce a nominal revenue while most are non-commercial and relieve the Water Department of the expense of upkeep and maintenance. Income is derived from 12 of these permits totaling $1,221.37. The remainder are used for non-commercial and garden purposes.

PUBLIC RELATIONS:

Contact with various local and county officials particularly in the Millbrae, San Bruno and other Peninsula areas, Niles, Pleasanton, etc., required much time and frequent contacts. Every effort has been made to improve and strengthen relations.

CARE OF PROPERTY:

The primary use of the land is for water producing purposes. To this extent every precaution is taken to see that tenants and all activities on the land do not interfere with this primary use. As a matter of fact, all revenue produced by this Division is "Found" money.

Weed control, sanitary measures and rodent control on the properties, cooperation with the various Departments of Agriculture, Health Boards and the University of California in various experiments and programs has been carried on.

FENCES:

Considerable replacing of boundary fences is necessary and many outlying sections in Alameda and Santa Clara Counties are in need of fencing. A fencing program is now being formulated to replace at least 20 miles of boundaries.

A standard cattle fence consists of 220 posts, 450 pickets and 13 spools of wire per mile. Posts being spaced 24' with 2 pickets in between with 4 wires.

CONCLUSION:

The work of this Division has been greatly increased. No provision in salaries is made for the non-agricultural leases which entail more time and effort because of their concentrated nature and because of their constantly increasing number.

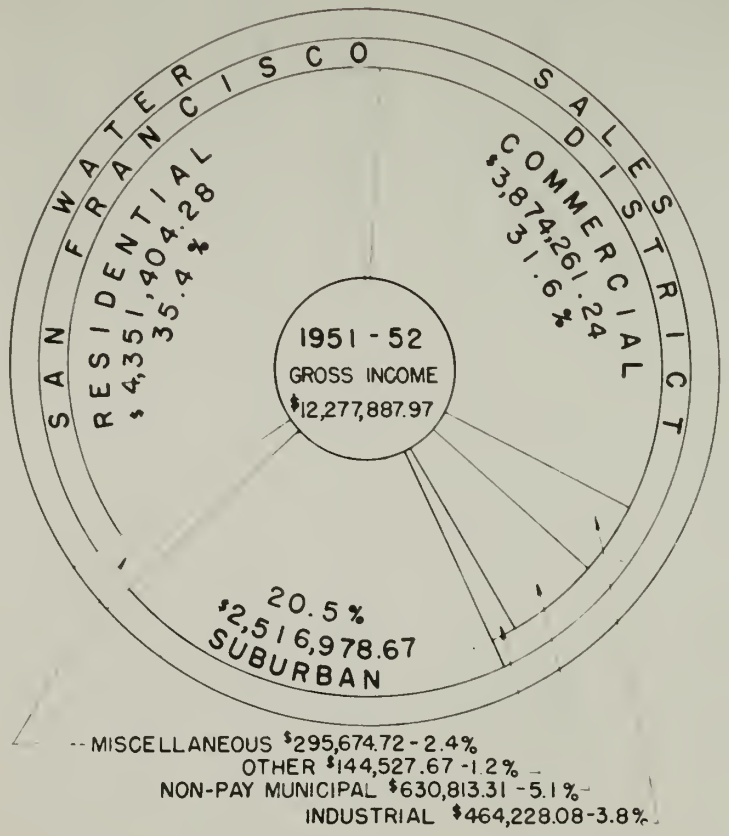
The personnel of this Division consists of the Agricultural Superintendent, his Assistant, Secretary, one working foreman, 2 laborers and 1 farmer. Additional seasonal help is required for various operations.

WALNUT CROP AND VALUE DURING CITY OWNERSHIP

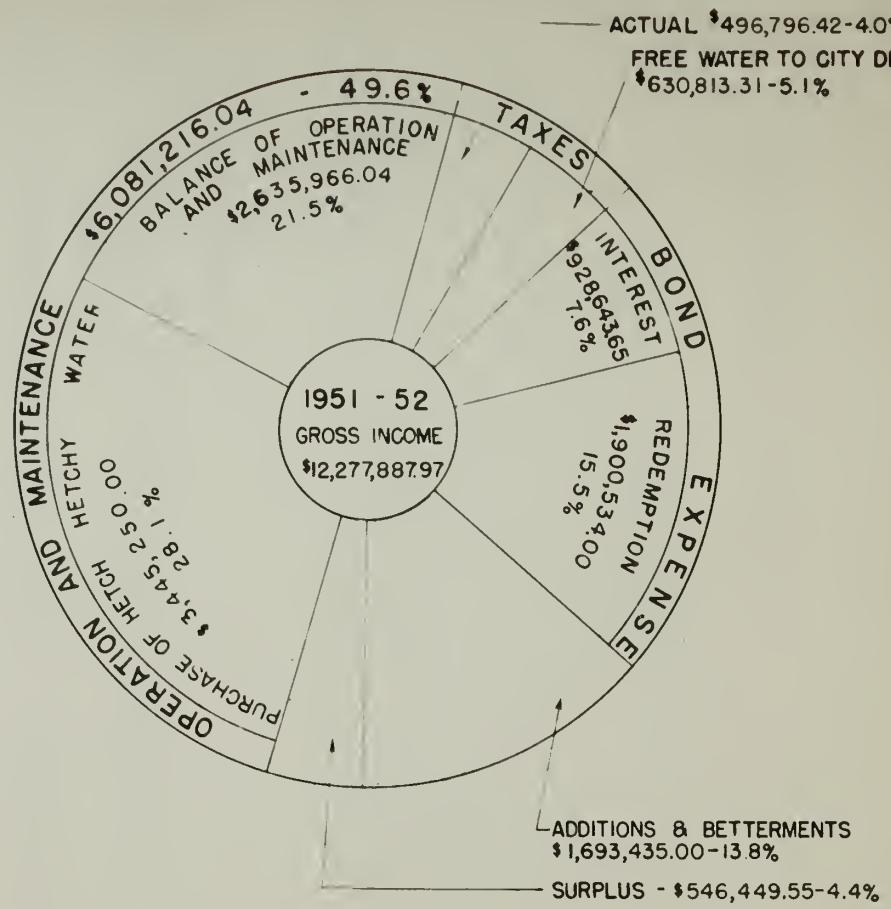
	Total Yield Pounds	Gross Value	Net Cash Received	Association Charges % of Gross *	Packing House Charges per lb.
1930	110,361.	$23,905.44	$20,024.55	16.23	$.0138
1931	91,570.	13,778.73	12,272.73	10.93	.0091
1932	206,795.	28,994.25	20,391.18	29.67	.0070
1933	153,080.	23,635.21	17,905.45	24.24	.0073
1934	136,672.	18,039.52	13,236.00	26.63	.0059
1935	209,095.	27,359.11	22,719.87	16.96	.0045
1936	187,605.	27,865.13	24,947.57	10.47	.0046
1937	179,954.	23,808.71	21,102.05	11.37	.0042
1938	258,934.	36,812.05	31,801.16	13.61	.0090
1939	153,770.	12,747.35	11,366.74	10.83	.0124
1940	90,148.	13,570.25	11,671.08	14.00	.0100
1941	239,062.	37,182.09	29,807.07	19.83	.0088
1942	254,594.	45,744.85	44,000.73	3.81	.0068
1943	188,590.	49,552.64	48,373.84	2.38	.0082
1944	107,831.	29,487.66	26,901.72	8.77	.0138
1945	214,919.	62,893.03	58,474.64	7.03	.0126
**1946	240,883.	73,017.57	73,017.57	0	0
**1947	81,167.	16,700.11	16,700.11	0	0
**1948	196,529.	39,896.52	39,896.52	0	0
**1949	153,434.	25,546.71	25,546.71	0	0
1950	135,377.	31,879.62	26,983.69	11.80	.0361
1951	184,497.	50,394.52	41,728.69	14.80	.0470
Prior Years Adjust		3,431.54	3,431.54		
	3,774,867.	716,242.61	642,301.21		

*Includes cost of surplus control, operatimg reserve and revolving fund in addition to actual Association charges for marketing expense.

**Sold under competitive bids.



SOURCE OF INCOME
FISCAL YEAR ENDING JUNE 30, 1952



DISPOSITION OF GROSS INCOME
FISCAL YEAR ENDING JUNE 30, 1952

ACCOUNTING AND AUDITING

The accounts of the San Francisco Water Department are maintained strictly in accordance with the requirements of the State Public Utilities Commission and Section 64 of the Charter, and the accounts of the Department have been so coordinated with the Controller's system that no encumbrance or expenditure against budget estimates can be incurred without prior certification from the Controller that funds are available. As provided in Ordinance 9,0621, an annual audit of the Department is made as of June 30, by a firm of certified public accountants. The accountant's report is not available at the time the Department's financial statement goes to press, hence there may be minor differences between the two reports due to reclassifications made by the accountants.

Comments on Financial Statements:

An analysis of the disposition of Earned Surplus, together with additions thereto and deductions therefrom is shown in the body of these comments.

The following financial statements and cost reports are presented:

Balance Sheet June 30, 1952 (Exhibit A).

Income Statement for the years ended June 30, 1951 and June 30, 1952 (Exhibit B).

Surplus Account June 1952 (Exhibits C and D).

Comparative Statement of Operating Expenses for fiscal year 1950-51 and 1951-52 (Exhibit E).

Operating Expenses for past four fiscal years (Schedules Nos. 1, 2, 3 and 4).

Additions, Betterments and Replacements for fiscal year 1951-52 (Schedule No. 5).

Agricultural Division, Receipts and Expenses for past five years (Schedule No. 6).

Operating Expenses, City Distribution Division for fiscal year 1951-52 (Schedule Nos. 11 and 12).

Operating Expenses, outside of San Francisco for fiscal year 1951-52 (Schedules Nos. 13 and 14).

Sale of water for the fiscal year 1951-52 was $11,982,213.25 as against $11,402,744.13 for prior year, an increase of $579,469.12, or 1.38% in San Francisco and 21.80% in the suburban districts.

Other Income amounts to $296,899.31, as against $237,246.98 for prior year, an increase of $59,652.33. Increase in Rental Income accounted for $33,067.97 of the total increase.

Operating Expenses show a net increase of $176,800.43 as shown by the following tabulation:

	Increase	Decrease
Source of Supply	$ 10,619.55	
Standby Charge and Purchase of Water		$ 129,796.00
Pumping Expenses	10,889.92	
Purification Expenses	12,586.03	
Transmission and Distribution Expenses	108,196.61	
Commercial Division Expenses	43,739.50	
Administrative and General	76,884.97	
Taxes Actual	7,590.35	
Provision for Doubtful Accounts	476.88	
Provision for Depreciation	8,709.54	
Municipal Taxes, Comparison*	26,903.08	
Net Increase		176,800.43
	$ 306,596.43	$ 306,596.43

*Water delivered to Municipal Departments offset by taxes.

Other Operating Expenses decreased $36,754.13 due principally to the decrease in amount of interest paid on $1,563,000 worth of bonds retired during the year.

DISPOSITION OF EARNED SURPLUS

	TO JUNE 30, 1951	YEAR 1951-1952	TO JUNE 30, 1952
SURPLUS			
CONTRIBUTED TO:			
GENERAL FUND	$15,992,457.24	$	$15,992,457.24
HETCH HETCHY PROJECT	4,510,127.21		4,510,127.21
HETCH HETCHY POWER	1,228.59		1,228.59
APPROPRIATED FOR:			
BOND REDEMPTION - SPRING VALLEY	21,000,000.00	1,000,000.00	22,000,000.00
" " - 1933 WATER DISTRIBUTION	8,161,594.33	563,000.00	8,724,594.33
" " - 1947 HETCH HETCHY	272,719.00	346,123.00	618,842.00
BOND INTEREST - 1947 HETCH HETCHY	459,078.73	142,488.86	601,567.59
ADDITIONS AND BETTERMENTS	15,181,280.79	1,693,435.00	16,874,715.79
ADDITIONS & BETTERMENTS - LAKE MERCED PROJECT	1,250,000.00		1,250,000.00
PURCHASE OF LAND	22,858.50		22,858.50
OTHER PURCHASES	100,429.29		100,429.29
FROM SURPLUS	-272,480.71	411,048.64	138,567.93
	$66,679,292.97	$4,156,095.50	$70,835,388.47
ADD:			
INITIAL EXCESS EARNINGS - SPRING VALLEY WATER CO.	$ 4,152,652.24	$	$ 4,152,652.24
VALUATION MUNICIPAL WATER WORKS	100,000.00		100,000.00
GRANTS EARNED ON FEDERAL PROJECTS	2,358,987.60		2,358,987.60
SURPLUS MATERIAL AND EQUIPMENT FROM CONSTRUCTION PROJECTS	373,041.59		373,041.59
LAND SALES - PROFIT	587,145.36	16,430.86	603,576.22
BOND PREMIUMS	821,684.38	18,976.48	840,660.86
PALO ALTO PIPELINE	360,271.90		360,271.90
MISCELLANEOUS ADDITIONS	392,367.12	3,667.50	396,034.62
BAY BRIDGE PUMP AND SUPPLY LINE	120,423.26		120,423.26
1947 HETCH HETCHY WATER BOND STRUCTURES		10,540,364.24	10,540,364.24
REVALUATION WATER DEPT. PROPERTIES,1952		577,659.70	577,659.70
	$9,266,573.45	$11,157,099.78	$ 20,423,673.23
DEDUCT:			
CONTRIBUTED TO HETCH HETCHY POWER FOR CUTO RESVR.	$ 410,700.00	$	$ 410,700.00
CONTRIBUTION TO GENERAL FUND	15,992,457.24		15,992,457.24
DEFICIT COUNTY LINE WATER WORKS	19,189.15		19,189.15
PAYMENT, FOR PURPOSE OF ENABLING CITY TO TAKE OVER PROPERTIES IN ADVANCE	745,274.31		745,274.31
LANDS CONTRIBUTED TO CITY	172,564.67		172,564.67
CONTRIBUTION TO OTHER PUBLIC SERVICE ENTERPRISES	4,477,166.10		4,477,166.10
MISCELLANEOUS DEDUCTION FROM SURPLUS	275,549.70		275,549.70
DEPRECIATION DUE TO REVALUATION	8,482,295.33	577,659.70	9,059,955.03
DEPRECIATION NOT FUNDED (ACCRUED SINCE 3/3/30)	11,327,332.98	923,747.04	12,251,080.02
	$ 41,902,529.48	$1,501,406.74	$ 43,403,936.22
	$ 34,043,336.94	$13,811,787.54	$ 47,855,124.48

EJW:DS

EXHIBIT A

SAN FRANCISCO WATER DEPARTMENT

BALANCE SHEET

JUNE 30, 1952

ASSETS

FIXED CAPITAL:		
In Service	$88,987,022.46	
Not in Service	313,305.09	
	$89,300,327.55	
Less Prov'n for Depreciation	30,008,010.08	
	$59,292,317.47	
Construction Work in Progress	1,905,916.59	$61,198,234.06
CASH:		
Treasurer's Balance, Schedule Annexed	5,980,554.16	
Revolving Fund	30,000.00	
Other Cash	-	6,010,554.16
ACCOUNTS RECEIVABLE:		
Consumers' Accounts *	931,180.63	
Less Reserve for Losses	4,000.00	
	927,180.63	
OTHER ACCOUNTS RECEIVABLE:		
Revenue	22,142.68	
Non-Revenue	55,896.86	1,005,220.17
INTERFUND ACCOUNTS:		
Public Service Enterprises	127,347.19	
General City and County	977.30	128,324.49
DEFERRED CHARGES:		
Deposits for Orders of Possession	67,282.00	
Materials and Supplies	687,007.51	
Rev. Fund Expend. Unbilled	185,338.07	
Misc. Jobbing and Sales Accounts, etc.	1,830.04	
Public Utilities Commission	1,156.38	942,614.00
TOTAL ASSETS		$69,284,946.88

LIABILITIES

BONDED DEBT:		
Spring Valley Water Bonds, 1928	$19,000,000.00	
Water Distribution Bonds, 1933	1,120,000.00	
	$20,120,000.00	
Matured, not presented for payment:		
Spring Valley, 1928	40,000.00	
Water Distribution - 1933	2,000.00	$20,162,000.00
BOND INTEREST PAYABLE:		
Accrued, not due:		
Spring Valley Water Bonds, 1928	427,500.00	
Water Distribution Bonds, 1933	3,733.33	
	$ 431,233.33	
Matured, not presented for payment:		
Spring Valley, 1928	12,442.50	
Water Distribution, 1933	420.00	444,095.83
ACCOUNTS PAYABLE:		
Retained Funds under Contracts	6,323.99	
Warrants Outstanding, Sched. Annexed	130,194.41	
Consumers' Deposits and Advances	267,562.57	
General Creditors	101,800.27	
Accrued Payroll	-	
Payroll Deductions Payable	29,949.66	535,830.90
INTERFUND ACCOUNTS:		
Schedule Annexed:		
Public Service Enterprises	104,787.43	
General City and County	34,989.04	139,776.47
DEFERRED CREDITS:		
Reserve for Compensation Insurance	95,798.16	
Reserve for Unpaid Rev. Fund Checks	5,050.00	
Other Deferred Credits	47,271.04	148,119.20
SURPLUS, Schedule Annexed		47,855,124.48
TOTAL LIABILITIES		$69,284,946.88

* Retroactive Billings in amount of $123,623.26 and the Deferred Revenue therefrom have not been included in the Balance Sheet.

SAN FRANCISCO WATER DEPARTMENT

INCOME ACCOUNT

TWELVE MONTHS ENDING JUNE 30, 1952 AND 1951

	Twelve Months ending June 30		Increase or - Decrease	Cumulation from March 3, 1930 to June 30, 1952
	1952	1951		
SALS OF WATER:				
San Francisco	$ 8,782,734.60	$ 8,678,025.05	$ 104,709.55	$156,166,247.36
Outside of San Francisco	2,516,978.67	2,066,565.30	450,413.37	18,604,689.92
Municipal Departments - Actual	51,686.67	54,243.55	- 2,556.88	1,302,829.06
Municipal Departments - Comparison *	630,813.31	603,910.23	26,903.08	10,602,107.33
	$11,982,213.25	$11,402,744.13	$ 579,469.12	$186,675,873.67
OPERATING EXPENSES:				
Source of Water Supply	327,486.05	316,866.50	10,619.55	5,864,469.08
Standby Charge & Purchase of Water	3,445,250.00	3.575,046.00	- 129,796.00	25,734,881.92
Pumping	316,513.23	305,623.31	10,889.92	5,917,922.05
Purification	124,965.54	112,379.51	12,586.03	1,525,662.90
Transmission and Distribution	748,809.62	640,613.01	108,196.61	8,818,836.70
Commercial Division	534,445.61	490,706.11	43,739.50	9,095,140.78
Administrative and General	515,658.25	438,773.28	76,884.97	7,277,032.68
Taxes - Actual	496,796.42	489,206.07	7,590.35	6,770,944.27
Provision for Doubtful Accounts	3,596.01	3,119.13	476.88	240,974.57
Provision for Depreciation	948,787.58	940,078.04	8,709.54	22,839,385.77
Municipal Taxes - Comparison *	630,813.31	603,910.23	26,903.08	10,618,346.05
	$ 8,093,121.62	$ 7,916,321.19	$ 176,800.43	$104,704,096.77
PROFIT FROM OPERATIONS:	3,889,091.63	3,486,422.94	402,668.69	81,971,776.90
OTHER INCOME:				
Rentals, incl. Crop Shares	$ 212,469.00	$ 179,401.03	$ 33,067.97	$ 1,942,110.01
Interest Earned	16,398.23	15,994.77	903.46	461,829.38
Sale of Walnuts	54,041.58	28,232.56	25,809.02	716,242.61
Miscellaneous	13,490.50	13,618.62	- 128.12	232,375.52
	$ 296,899.31	$ 237,246.98	$ 59,652.33	$ 3,352,557.52
OTHER EXPENSES:				
Bond Interest	928,586.17	984,957.50	- 56,371.33	34,609,715.81
Agricultural Division	23,072.69	22,362.02	710.67	356,079.81
Walnut Orchard Expense	39,939.13	22,085.10	17,854.03	467,094.41
Miscellaneous	1,479.91	427.41	1,052.50	75,485.80
	$ 993,077.90	$ 1,029,832.03	$ - 36,754.13	$ 35,508,375.83
NET INCOME	$ 3,192,913.04	$ 2,693,837.89	$ 499,075.15	$ 49,815,958.59

* Water Service to Municipal Departments offset by Municipal Taxes

37

SAN FRANCISCO WATER DEPARTMENT

SURPLUS ACCOUNT

FOR TWELVE MONTHS ENDING JUNE 30, 1952

SURPLUS. JUNE 30, 1950	$34,043,336.94	
ADD:		
Net Income for Twelve Months ending June 30, 1952	3,192,913.04	
Miscellaneous Additions to Surplus	580,336.57	
From Plant Revaluation June 30, 1948	83,864.03	
Properties in Service from proceeds of 1947 Hetch Hetchy Water Bond Fund	10,540,364.24	$48,440,814.82
DEDUCT:		
Miscellaneous Deductions from Surplus	$ 72,082.49	
Contribution to 1947 H. H. Water Bond Fund	507,588.34	
Contribution to Hetch Hetchy Water Supply	6,019.51	585,690.34
SURPLUS - JUNE 30, 1952		$47,855,124.48

EXHIBIT D

SAN FRANCISCO WATER DEPARTMENT

COMPOSITION OF SURPLUS - CONDENSED

JUNE 30, 1952

INITIAL SURPLUS - MARCH 3, 1930			
Amortization on Contribution (Spring Valley)		$ 4,152,652.24	
Valuation of Municipal Water Works		100,000.00	
		$ 4,252,652.24	
Less: Add'l Allowance for Depr'n March 1, 1920 to March 3, 1930		2,327,916.67	$ 1,924,735.57
ADDITIONS:			
Net Profit, March 3, 1930 to June 30, 1952		49,815,958.59	
Miscellaneous and year to year adjustments		5,042,150.29	
Contribution from Hetch Hetchy Power Division		409,471.41	
Bay Division Pipe Line No. 3 and Sunset Supply Line in Service (Paid from proceeds of 1947 Hetch Hetchy Water Bonds)		10,540,364.24	65,807,944.53
Grants earned on Federal Public Works Project			2,358,987.60
Year to year - Additions to Surplus - June 30, 1952			1,504,481.49 $71,596,149.19
DEDUCTIONS:			
Contributed to General Fund			$15,992,457.24
Contributed to 1947 H. H. Water Bond Fund	$1,239,386.07		
Contributed to H. H. Water Supply	4,430,005.85		5,669,391.92
Lands Contributed:			
To City and County of San Francisco for Streets and Boulevards			172,564.67
Excess of Adjusted Book Value of Plant Appraisal Dec. 31, 1937		$1,990,474.91	
Less: Adjusted Book Value of Plant Appraisal June 30, 1948		83,864.03	1,906,610.88 23,741,024.71
SURPLUS - JUNE 30, 1952			$47,855,124.48

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

EXHIBIT E

COMPARATIVE STATEMENT OF OPERATING EXPENSES
FOR THE FISCAL YEARS ENDED JUNE 30, 1952 AND JUNE 30, 1951

	Fiscal Year ended June 30 1952	1951
SOURCE OF WATER SUPPLY EXPENSES:		
Superintendence	$ 51,515.19	$47,208.56
Operating Labor	68,756.81	59,359.99
Operating Supplies and Expenses	20,246.34	19,219.65
Repairs & Maintenance- Buildings, Fixtures and Grounds	141,334.85	115,710.81
Repairs- Surface Facilities	45,632.86	75,367.49
	$327,486.05	$316,866.50
PUMPING EXPENSES:		
Labor - Pumping	$ 89,231.70	$ 78,036.05
Fuel for Steam	55,121.34	48,804.76
Power Purchased	156,040.60	162,267.85
Lubricants	58.39	55.84
Miscellaneous Supplies and Expenses	2,940.83	2,784.32
Repairs - Primary Pumping Equipment	7,865.82	8,244.34
Repairs - Boilers and Equipment	601.73	336.54
Repairs - Miscellaneous Equipment	775.08	645.93
Repairs - Building Fixtures and Grounds	3,877.74	4,447.68
	$316,513.23	$305,623.31
PURIFICATION EXPENSES:		
Superintendence and Labor	$ 45,324.30	$ 39,572.33
Supplies and Expense	77,443.32	68,533.48
Repairs - Plant, Structures and Equipment	2,197.92	4,273.70
	$124,965.54	$112,379.51
TRANSMISSION AND DISTRIBUTION EXPENSES:		
Superintendence	$ 73,145.51	$ 64,024.92
Patrolling Storage Facilities	21,307.07	18,948.96
Meters and Fittings Department	129,469.91	140,032.55
Street Department	28,444.51	24,453.55
Consumers' Premises Expenses	51,295.17	47,116.09
Miscellaneous Supplies and Expenses	20,380.41	10,438.08
Repairs- Transmission Mains and Canals	47,104.98	29,538.91
Repairs- Reservoirs, Tanks and Standpipes	3,688.48	1,806.22
Repairs- Distribution Mains and Canals	139,250.34	133,059.38
Repairs- Service Connections	152,066.44	121,572.52
Repairs- Distribution Buildings and Grounds	40,932.64	34,472.48
Repairs- Distribution Equipment	9,017.97	3,430.02
Reconstruct and Relocate Pipe Lines and Services	32,706.19	11,719.33
	$748,809.62	$640,613.01

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

EXHIBIT E

- Continued -

	Fiscal Year ended June 30 1952	1951
COMMERCIAL EXPENSES:		
Collections	$137,184.53	$118,344.98
Reading Meters	70,122.82	69,884.11
Bookkeeping Department	178,313.57	162,136.33
General	63,519.55	66,488.76
Inspection and Service	61,303.22	53,311.19
Shipping	24,001.92	20,540.74
	$534,445.61	$490,706.11
ADMINISTRATIVE AND GENERAL EXPENSE:		
Salaries- General Officers	$ 20,943.20	$20,768.64
Salaries - General Office Clerks	70,955.56	63,123.12
Miscellaneous Supplies and Expenses	3,275.31	2,757.20
Injuries and Damages	26,901.68	15,884.81
Retirement System Contributions	128,344.87	100,271.76
Mason Street Building Expense	33,366.24	33,477.34
Telephone Service	30,265.98	28,016.34
Guest Cottages and Rest Room	304.97	702.37
General Engineering	70,228.59	68,616.20
Hydrography	1,135.98	865.97
Miscellaneous	1,568.99	2,493.49
Compensation Insurance	16,458.20	14,891.62
Other Insurance	8,619.30	1,543.66
Repairs- Mason St. Building	6,456.95	3,535.73
Repairs- Telephone System	16,313.03	12,998.59
Professional Services	26,634.15	17,846.69
Public Utility Commission Expense	48,885.25	50,979.75
Property Taxes (Outside of San Francisco)	496,796.42	489,206.07
	$1,012,454.67	$ 927,979.35

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 1
OPERATING EXPENSES

RESERVOIRS AND SOURCES:	1948-1949	1949-1950	1950-1951	1951-1952
INSIDE OF SAN FRANCISCO:				
Lake Merced	$ 4,558.12	$ 5,146.96	$ 4,514.79	$ 5,245.47
OUTSIDE OF SAN FRANCISCO:				
SURFACE SOURCES:				
San Andres Reservoir	$ 15,487.12	$ 15,440.14	$ 22,021.06	$ 20,368.61
Crystal Springs Reservoir	40,403.68	50,950.63	51,518.03	61,186.13
Pilarcitos Reservoir	33,673.10	27,504.94	26,852.88	33,115.06
Calaveras Reservoir	11,344.55	12,750.27	10,752.20	14,671.47
	$ 100,908.45	$ 106,645.98	$ 111,144.17	$ 129,341.27
GROUND SOURCES:				
Sunol Filter Beds	$ 16,741.14	$ 11,713.64	$ 11,227.50	$ 13,819.48
Pleasanton Wells	15,999.06	3,437.16	2,135.64	2,823.74
	$ 32,740.20	$ 15,150.80	$ 13,363.14	$ 16,643.22
SUPPLY LINES AND AQUEDUCTS:				
Bay Division Pipe Lines	$ 29,994.11	$ 21,790.69	$ 67,087.80	$ 34,315.38
Stone Dam Aqueduct	8,051.86	6,143.20	3,515.32	7,478.39
Niles-Irvington Pipe Line	2,228.48	3,795.93	5,314.61	938.43
Other Supply Lines and Aqueducts	3,984.39	19,878.74	6,636.24	10,101.48
	$ 44,258.84	$ 51,608.56	$ 82,553.97	$ 52,833.68
Alameda System - General Expenses	31,387.89	30,693.37	27,139.79	31,137.29
Peninsula System - General Expenses	77,325.45	78,476.61	78,150.64	92,285.12
	$ 108,713.34	$ 109,169.98	$ 105,290.43	$ 123,422.41
TOTAL SOURCE OF SUPPLY EXPENSE	$ 291,178.95	$ 287,722.28	$ 316,866.50	$ 327,486.05

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 2
OPERATING EXPENSES

PUMP STATIONS	1948-1949	1949-1950	1950-1951	1951-1952
INSIDE OF SAN FRANCISCO:				
STEAM PLANTS:				
Central	$ 108,702.87	$ 96,356.15	$ 101,996.48	$ 117,797.92
City	65.93	108.40	12.22	30.22
Clarendon Heights	503.17	475.14	489.73	407.96
	$ 109,271.97	$ 96,939.69	$ 102,498.43	$ 118,236.10
ELECTRIC PUMPS:				
Francisco Street	$ 3,279.85	$ 3,853.60	$ 3,266.69	$ 2,574.85
Alemany	41,126.45	40,953.32	33,921.36	28,099.00
Bay Bridge Pump - Treasure Island	6,656.97	4,968.93	6,982.70	9,026.82
Forest Hill	7,717.55	7,717.28	8,097.01	8,451.80
Potrero Heights	769.03	1,581.22	475.62	627.00
Newcomb Avenue	6,046.11	6,354.10	5,801.33	6,008.46
Fairview	510.87	543.09	650.02	467.57
Lincoln Park	920.91	840.25	728.46	839.49
Palo Alto	337.09	422.54	272.82	328.97
Twin Peaks	891.23	628.05	1,104.28	1,608.22
Lake Honda Booster	709.44	423.55	287.10	288.98
Sunset Booster	300.99	498.64	453.04	434.48
Sunset Source	16.25	1.92	1.60	2.00
Olmstead and University	2,050.51	1,191.73	915.24	965.63
Bernal Heights	394.27	435.97	428.68	361.04
General	818.10	858.29	813.27	1,058.86
	$ 72,345.62	$ 71,270.28	$ 64,199.82	$ 61,143.17
TOTAL INSIDE OF SAN FRANCISCO	$ 181,617.59	$ 168,215.97	$ 166,698.25	$ 179,379.27
OUTSIDE OF SAN FRANCISCO:				
Baden	$ 1,505.96	$ 1,841.01	$ 1,697.06	$ 1,058.67
Crystal Springs Pump	139,749.97	118,470.95	109,663.69	107,948.79
Bay Division Pump	2,601.63	828.76	260.41	302.21
Pleasanton Pump	18,051.10	3,858.36	3,388.84	3,667.61
Pleasanton Township Water District	3,549.09	723.70	514.24	1,138.73
Irvington Pump	46,425.27	28,305.17	23,392.82	23,017.95
TOTAL OUTSIDE OF SAN FRANCISCO	$ 213,883.02	$ 154,027.95	$ 138,925.06	$ 137,133.96
TOTAL PUMPING EXPENSES	$ 395,500.61	$ 322,243.92	$ 305,623.31	$ 316,513.23

84

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 3
OPERATING EXPENSES

PURIFICATION EXPENSES	1948-1949	1949-1950	1950-1951	1951-1952
INSIDE OF SAN FRANCISCO:				
Francisco Street	$	$	$ 130.27	$ 47.97
College Hill	1,302.03	1,819.30	1,238.60	1,044.67
Lake Honda	234.93	67.46	337.06	107.64
Lombard Street	259.45	178.32	143.65	125.93
Sunset	220.95	266.84	308.53	433.69
University Mound	1,050.52	1,455.84	1,241.81	1,264.92
Lake Merced	1.06	0.00	0.00	0.00
TOTAL INSIDE OF SAN FRANCISCO	$ 3,068.94	$ 3,787.76	$ 3,399.92	$ 3,024.82
OUTSIDE OF SAN FRANCISCO:				
Rock River Lime Plant	$	$	$ 6,953.64	$ 11,639.06
San Andres Reservoir	6,320.66	8,180.35	9,071.75	9,087.76
Crystal Springs Reservoir	6,031.67	6,910.53	14,818.12	15,829.62
Calaveras Reservoir	13,910.53	14,282.42	11,065.57	15,520.43
Sunol Purification System	2,176.73	1,217.37	1,566.33	2,091.86
Other Outside Stations	105.30	1,027.82	1,176.86	1,974.04
Coast Range Division, H.H.W.S.	24,474.68	22,529.72	24,242.16	19,685.85
Millbrae Laboratory	46,259.30	45,038.98	40,035.16	46,112.10
TOTAL OUTSIDE OF SAN FRANCISCO	$ 99,278.87	$ 99,187.19	$ 108,979.59	$ 121,940.72
TOTAL PURIFICATION EXPENSES	$ 102,347.81	$102,974.95	$ 112,379.51	$ 124,965.54

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 4
OPERATING EXPENSES

TRANSMISSION AND DISTRIBUTION	1948-1949	1949-1950	1950-1951	1951-1952
INSIDE OF SAN FRANCISCO:				
City Transmission Lines	$ 6,827.17	$ 9,784.33	$ 4,295.46	$ 3,941.10
Reconstruct and Relocate Pipe Lines	52,793.19	37,414.66	11,719.33	32,706.19
City Distribution Reservoirs	47,299.90	49,609.93	45,971.50	54,591.94
Meter Expenses	67,768.68	102,547.77	123,622.07	107,952.22
Street Department Expenses	25,964.76	27,651.49	24,453.55	28,444.51
Main Repairs	104,690.73	130,005.28	132,951.50	139,250.34
Service Connection Repairs	146,207.17	123,569.52	121,511.69	152,066.44
Repairs to Buildings and Equipment	5,604.04	3,124.06	3,430.02	9,017.97
Operation of Corporation Yard	16,356.98	13,114.25	8,553.97	18,836.93
Consumers' Premises Expenses	27,890.55	31,449.70	47,116.09	51,295.17
Superintendence	59,593.23	69,238.53	64,024.92	73,145.51
TOTAL INSIDE SAN FRANCISCO	$ 560,996.40	$ 597,509.52	$ 587,650.10	$ 671,248.32
OUTSIDE OF SAN FRANCISCO:				
Alameda Supply Line - Alameda Division	$ 2,116.65	$ 1,067.58	$ 270.07	$ 512.47
Alameda Supply Line - Peninsula Division	871.17	-0-	-0-	-
Alameda Transmission Line	16,543.94	3,903.20	4,367.01	3,611.23
Sunset Transmission Line	74.55	1,522.49	1,670.15	1,129.08
Crystal Springs Pump Aqueduct	10,400.85	7,092.21	11,268.50	10,382.74
New Crystal Springs Transmission Line	9,242.38	13,518.04	942.19	2,024.23
Old Crystal Springs Transmission Line	7,012.02	20,173.44	4,189.49	22,889.84
San Andres Transm. Line #1, to College Hill	6,152.82	14,418.85	5,872.18	2,560.17
do- #2, to Lake Honda	3,648.66	4,066.05	2,740.44	3,454.87
do- #3, to Merced Manor	1,382.58	2,597.64	1,589.85	4,428.35
Palo Alto Pipe Line	34.51	64.48	131.20	4.65
Niles Regulating Reservoir	3,499.30	4,819.71	3,081.96	4,511.48
Pleasanton Transmission Line	163.87	19.74	260.68	34.50
Meter Expense, Peninsula Division	16,110.03	20,345.23	16,225.02	21,118.19
Meter Expense, Alameda Division	961.03	274.16	354.17	399.50
TOTAL OUTSIDE OF SAN FRANCISCO	$ 78,214.36	$ 93,882.82	$ 52,962.91	$ 77,561.30
TOTAL TRANSMISSION AND DISTRIBUTION EXPENSES	$ 639,210.76	$ 691,392.34	$ 640,613.01	$ 748,809.62

ADDITIONS, BETTERMENTS AND REPLACEMENTS

JUNE 30, 1952

A/C No.	CONTRACT NO	DESCRIPTION	RETIREMENTS	ADDITIONS	ENGINEERING OFFICE	ENGINEERING FIELD	FORCE ACCOUNT	CONTRACTS	MATERIAL AND SUPPLIES	CONTRACTUAL SERVICE	EQUIPMENT	MISCELLANEOUS
1015		LANDED CAPITAL	$	$	$	$	$	$	$	$	$	$
		PURCHASE OF LAND AND EASEMENTS		222,279.88								222,279.88
		SALE OF LAND	18,343.24									
1020		BUILDINGS, STRUCTURES & IMPROVEMENTS										
		BETA PLAIN SHOP - BRIANT ST.		1,554.46			1,496.53				57.93	
	I 98	LAVA PORTION BRIANT ST. TANK		1,859.55				1,859.55				
				$ 3,414.01			$ 1,496.53	$ 1,859.55			$ 57.93	
1025		SOURCE OF SUPPLY										
		GROUT COST ADJUSTMENT										
	574	CALAVERAS DAM		61,668.56	4,314.20	3,246.96		54,107.40				
		BAY DIVISION PIPE LINE #3										
	524 AC	UNITED CONCRETE PIPE CORP.		4,931,324.20	186,268.57	271,242.43		4,239,272.35				234,520.85
	524 B	ARTUKOVICH BROS.		4,741,832.38	179,130.21	260,819.62		4,076,373.43				225,509.12
		MATERIALS AND SUPPLIES		124,229.23	4,692.95	6,333.10			106,795.16			5,908.02
		CONSTRUCTION EQUIPMENT		6,393.01							6,393.01	
		EXPENDITURES FROM 1947 BOND FUND		$9,803,778.82	$370,111.73	538,[illegible]95.15		$8,315,645.78	$106,795.16		$ 6,393.01	$465,937.99
		EXPENDITURES FROM EXTENSION FUND		142,722.02	142,722.02							
		TOTAL BAY DIV'N P/L #3 TO JUNE 30, 1952		$10,016,500.84	$512,833.75	538,[illegible]95.15		$8,315,645.78	$106,795.16		$ 6,393.01	$465,937.99
		TOTAL SOURCE OF SUPPLY		$10,008,169.40	$517,147.95	542,142.11		$8,359,753.18				
1030		PUMPING STATION EQUIPMENT	[illegible]	2,987.13							$ 2,987.13	
1035		PURIFICATION CAPITAL										
		EQUIPMENT	[illegible]	12,296.14							12,296.14	
	583	COLLEGE HILL CHLORINATION STATION		7,527.72	[illegible]4.74	587.26		5,632.50			752.62	
	551	SAN LEANDRO CHLORINATION #1		24,519.21	387.29	1,544.77		22,617.15				
		TOTAL PURIFICATION CAPITAL	[illegible]	44,330.4[illegible]	542.03	32,132.03		28,249.65			$ 13,048.76	
1040		TRANSMISSION AND DISTRIBUTION										
		CAST IRON MAINS - [illegible]		41,240.32			41,240.32					
		CAST IRON MAINS - [illegible]	[illegible]345.15	333,843.85		8,027.05	14,647.17	161,359.12	149,810.51			
		STEEL MAINS		146,216.91			12,082.71		134,134.20			
		INSTALL SERVICES	9,663.25	133,926.85			101,346.96		32,579.89			
		CAST IRON GATE VALVES		12,085.12			12,085.12					
		CLAY STREET TANK	5,381.00									
		REHABILITATE METER COLLEGE HILL RESVR.		4,484.27	249.94				4,234.33			
		[illegible]		4,500.00			4,500.00					
			$62,[illegible]49.40	$ 676,297.32	$ 249.94	$8,027.05	185,902.28	$161,359.12	$320,758.93			
1045		GENERAL EQUIPMENT	12,788.91	40,987.41							$ 40,987.41	
1046		AUTOMOTIVE EQUIPMENT	12,511.75	21,541.93							21,541.93	
		TOTAL FOR YEAR 1951-52		$11,020,049.55	$518,339.92	$552,301.19	$187,398.81	$8,561,221.50	$427,554.09		$ 85,016.17	$688,217.87

a - Interest during Construction $ 452,341.08
Undistributed Construction Cost 13,596.91
$ 465,937.99

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 6

AGRICULTURAL DIVISION

RECEIPTS AND EXPENSES

	1947-1948	1948-1949	1949-1950	1950-1951	1951-1952
RECEIPTS, AGRICULTURAL:					
Rentals - Cattle Leases	$ 57,014.42	$ 90,869.37	$ 71,181.69	$ 87,426.32	$ 100,610.92
Rentals - Flat Rates	10,652.41	14,233.97	14,542.75	31,766.66	27,508.24
Rentals - Share Crops	21,550.79	21,148.73	23,384.95	12,191.19	16,610.19
RECEIPTS, NON-AGRICULTURAL:					
Rentals - Flat Rates	11,781.73	9,935.52	9,578.31	11,071.28	13,216.47
Taxes Paid by Tenants	840.02	200.77	0.00	0.00	1,745.57
Royalties	28,585.86	24,277.24	11,920.68	21,802.94	30,537.51
Sales of Walnuts	16,700.11	39,896.52	25,546.71	31,879.62	50,394.52
Miscellaneous	5,588.48	11,597.79	9,392.53	7,237.64	14,350.10
TOTAL GROSS INCOME	$ 152,713.82	$ 212,179.91	$ 165,547.62	$ 203,375.65	$ 254,973.52
EXPENSES:					
Administrative and Superintendence	$ 13,461.14	$ 16,757.00	$ 16,365.83	$ 15,644.10	$ 14,617.17
Miscellaneous Office Supplies & Expenses	237.89	212.82	96.36	535.70	738.28
Automotive Service	1,038.67	1,244.53	1,080.66	1,433.64	1,773.98
Share Crops:					
Storage Insurance, Handling, Freight	511.14	505.56	474.70	246.03	316.03
Care of Properties: Repairs -					
Buildings, Structures and Grounds	4,647.47	3,144.52	1,778.73	4,502.55	5,627.23
Walnut Orchard:					
Care of Orchard	12,829.99	14,043.07	14,319.72	12,104.60	16,378.64
Crop Harvest	6,070.65	13,205.65	8,891.06	8,415.99	11,563.24
Packing House and Selling Expense				4,895.93	8,665.83
NET OPERATING EXPENSE	$ 38,796.95	$ 49,113.15	$ 43,007.06	$ 47,778.54	$ 59,680.40
NET INCOME	$ 113,916.87	$ 163,066.76	$ 122,540.56	$ 155,597.11	$ 195,293.12

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 11
OPERATING EXPENSES- 1951-1952
CITY DISTRIBUTION DIVISION - PUMPING STATION ACCOUNT

	LABOR	USE OF EQUIPMENT	MATERIAL AND SUPPLIES	FUEL OR POWER	CONTRACTUAL SERVICE	TOTAL
STEAM PUMPS:						
CENTRAL	$ 62,020.20	$ 50.20	$ 380.02	$ 55,325.34	$ 22.16	$ 117,797.92
CITY	19.60	.80	9.82			30.22
CLARENDON HEIGHTS	402.18	4.80	.98			407.96
	$ 62,441.98	$ 55.80	$ 390.82	$ 55,325.34	$ 22.16	$ 118,236.10
ELECTRIC PUMPS:						
ALEMANY	$ 4,560.61	$ 17.60	17.81	23,502.98		$ 28,099.00
BAY BRIDGE - TREASURE ISLAND	676.65	36.00	106.74	8,207.43		9,026.82
BERNAL HEIGHTS	255.00	3.20		102.84		361.04
FAIRVIEW	413.57	25.60	28.40			467.57
FOREST HILLS	544.45	49.60	17.61	7,804.14	$ 36.00	8,451.80
FRANCISCO STREET	381.63	28.80	17.96	2,146.46		2,574.85
LAKE HONDA	271.88	17.10				288.98
LINCOLN PARK	350.74	37.30	23.40	428.05		839.49
NEWCOMB AVENUE	341.43	27.20	2.05	5,637.78		6,008.46
OLMSTEAD & UNIVERSITY	343.76	21.40	63.24	537.23		965.63
PALO ALTO	283.35	22.40	3.78	19.44		328.97
POTRERO HEIGHTS	323.40	9.00		294.60		627.00
SUNSET BOOSTER	418.05	7.90	8.53			434.48
SUNSET SOURCE		2.00				2.00
TWIN PEAKS	381.84	30.80		769.87	425.71	1,608.22
GENERAL	213.61	32.25	504.64		303.36	1,053.86
	$ 9,764.97	$ 368.15	$ 794.16	$ 49,450.82	$ 765.07	$ 61,143.17
TOTAL INSIDE SAN FRANCISCO	$ 72,206.95	$ 423.95	$ 1,184.98	$ 104,776.16	$ 787.23	$ 179,379.27

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 12

OPERATING EXPENSES - 1951-1952
CITY DISTRIBUTION DIVISION

SOURCE OF SUPPLY:	LABOR	USE OF EQUIPMENT	MATERIAL & SUPPLIES	CONTRACTUAL SERVICE	PAVING	MISCELLANEOUS	TOTAL
LAKE MERCED	$ 4,971.07	$ 57.30	$ 154.02	$ 63.08			$ 5,245.47
PURIFICATION:							
COLLEGE HILL	$ 73.17	$ 6.60	$ 709.42	$ 255.48			$ 1,044.67
SUNSET RESERVOIR	114.27	10.85	302.10	6.47			433.69
UNIVERSITY MOUND	198.67	15.00	939.50	111.75			1,264.92
LOMBARD	40.45	2.20	65.48	17.80			125.93
LAKE HONDA	34.64	15.60	54.80	2.60			107.64
FRANCISCO STREET			47.97				47.97
TOTAL	$ 461.20	$ 50.25	$ 2,119.27	$ 394.10			$ 3,024.82
TRANSMISSION AND DISTRIBUTION:							
CITY TRANSMISSION LINES	$ 2,788.32	$ 213.65	$ 793.95	$ 145.18			$ 3,941.10
CITY RESERVOIRS	49,605.79	1,367.77	2,201.28	1,417.10			54,591.94
METER EXPENSE	48,823.75	1,229.88	39,569.54	1,042.40	$ 17,186.15	$ 100.50	107,952.22
STREET DEPARTMENT EXPENSE	27,746.37	672.00	21.51	4.63			28,444.51
OPERATION OF CORPORATION YARD	11,079.64	920.40	5,033.55	1,803.34			18,836.93
SUPERINTENDENCE	70,907.46	1,473.19	291.50	473.36			73,145.51
CONSUMERS' PREMISES EXPENSES	47,470.04	3,547.73	46.75	230.65			51,295.17
REPAIRS- DISTRIBUTION MAINS	104,836.73	7,612.05	17,450.99	2,148.72	7,201.35		139,250.34
REPAIRS- SERVICE CONNECTIONS	107,776.79	7,699.30	17,152.82	2,387.22	13,308.40	3,741.91	152,066.44
REPAIRS- BUILDING & EQUIPMENT	7,177.77	97.30	1,737.71	5.19			9,017.97
RECONSTRUCT AND RELOCATE PIPE LINES	25,334.51	1,990.00	4,366.76	1,014.92			32,706.19
	$ 503,547.17	$ 26,823.27	$ 88,666.36	$ 10,672.71	$ 37,696.40	$ 3,842.41	$ 671,248.32
TOTAL CITY DISTRIBUTION DIVISION	$ 508,979.44	$ 26,930.82	$ 90,939.65	$ 11,129.89	$ 37,696.40	$ 3,842.41	$ 679,518.61

SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 13
OPERATING EXPENSES- 1951 - 1952
OUTSIDE SAN FRANCISCO

	LABOR	USE OF EQUIPMENT	MATERIAL AND SUPPLIES	CONTRACTUAL SERVICES	MISCELLANEOUS	TOTAL
SOURCE OF SUPPLY:						
SURFACE SOURCES:						
SAN ANDRES RESERVOIR	$ 17,486.14	$ 1,098.17	$ 1,083.87	$ 700.43		$ 20,368.61
CRYSTAL SPRINGS RESERVOIR	46,096.58	7,083.44	6,094.61	1,911.50		61,186.13
PILARCITOS RESERVOIR	25,194.83	2,240.16	5,242.54	437.53		33,115.06
CALAVERAS RESERVOIR	12,343.24	624.15	738.50	965.58		14,671.47
TOTAL	$ 101,120.79	$ 11,045.92	$ 13,159.52	$ 4,015.04		$ 129,341.27
GROUND SOURCES:						
SUNOL FILTER BEDS	$ 11,750.37	$ 282.65	$ 766.84	$ 1,019.62		$ 13,819.48
PLEASANTON WELLS	407.00	89.40		2,327.34		2,823.74
TOTAL	$ 12,157.37	$ 372.05	$ 766.84	$ 3,346.96		$ 16,643.22
SUPPLY LINES:						
BAY DIVISION PIPE LINE (PEN. DIV.)	$ 18,230.14	$ 1,884.45	$ 3,182.97	$ 256.79	$ 44.10	$ 23,598.45
STONE DAM AQUEDUCT	6,032.42	515.85	847.72	82.40		7,478.39
NILES- IRVINGTON PIPE LINE	680.38	258.05				938.43
BAY DIVISION PIPE LINE (ALAMEDA DIVISION)	8,586.06	1,708.00	394.10	28.77		10,716.93
OTHER SUPPLY LINES & AQUEDUCTS (PENINSULA DIVISION)	1,623.55	190.65	273.95	3,436.61		5,524.76
OTHER SUPPLY LINES (ALAMEDA DIVISION)	4,125.48	327.30	109.94	14.00		4,576.72
TOTAL	$ 39,278.03	$ 4,884.30	$ 4,808.68	$ 3,818.57	$ 44.10	$ 52,833.68
GENERAL EXPENSES:						
ALAMEDA SYSTEM	$ 25,855.84	$ 3,069.63	$ 1,846.49	$ 365.33		$ 31,137.29
PENINSULA SYSTEM	80,346.19	2,050.88	2,872.19	7,015.86		92,285.12
TOTAL	$ 106,202.03	$ 5,120.51	$ 4,718.68	$ 7,381.19		$ 123,422.41
TOTAL SOURCE OF SUPPLY	$ 258,758.22	$ 21,422.78	$ 23,453.72	$ 18,561.76	$ 44.10	$ 322,240.58

PUBLIC UTILITIES COMMISSION
SAN FRANCISCO WATER DEPARTMENT

SCHEDULE NO. 14

OPERATING EXPENSES 1951 - 1952
OUTSIDE OF SAN FRANCISCO

	LABOR	USE OF EQUIPMENT	MATERIAL AND SUPPLIES	FUEL OR POWER	CONTRACTUAL SERVICE	MISCELLANEOUS	TOTAL
PUMPING STATIONS							
BADEN PUMP	$ 891.75	$ 21.80	$ 65.86	$ 27.96	$ 51.30		$ 1,058.67
CRYSTAL SPRINGS PUMP	22,259.49	1,503.27	449.39	83,289.64	447.00		107,948.79
BAY DIVISION PUMP				302.21			302.21
PLEASANTON PUMP	1,171.55	13.55	133.96	2,346.55	2.00		3,667.61
PLEASANTON TOWNSHIP WATER DIST.				1,138.73			1,138.73
IRVINGTON PUMP	2,975.00	300.25	62.31	19,290.69	389.70		23,017.95
OUTSIDE PUMPING EXPENSES	$ 27,297.79	$ 1,838.87	$ 711.52	$ 106,395.78	$ 890.00		$ 137,133.96
PURIFICATION							
SAN ANDRES RESERVOIR	$ 1,323.73	$ 287.50	$ 6,368.30	$ 1,108.23			$ 9,087.76
CRYSTAL SPRINGS RESERVOIR	3,702.93	748.85	11,138.94		$ 238.90		15,829.62
CALAVERAS RESERVOIR	1,721.23	332.50	12,824.12	642.58			15,520.43
SUNOL PURIFICATION STATION	839.23	110.80	1,141.13	.70			2,091.86
OTHER OUTSIDE STATIONS	1,266.62	155.10	360.81	191.51			1,974.04
COAST RANGE DIVISION - H.H.W.S.	419.29	658.10	16,663.41	1,945.05			19,685.85
LIME TREATMENT PLANT			10,673.40	965.66			11,639.06
MILLBRAE LABORATORY	36,812.31	4,331.63	1,537.15	3,431.01			46,112.10
OUTSIDE PURIFICATION EXPENSES	$ 46,085.34	$ 6,624.48	$ 60,707.26	$ 8,284.74	$ 238.90		$ 121,940.72
TRANSMISSION AND DISTRIBUTION							
PENINSULA DIVISION							
ALAMEDA TRANSMISSION LINE	$ 3,023.70	$ 140.15	$ 411.67	$ 32.71			$ 3,611.23
CRYSTAL SPRINGS AQUEDUCT	10,381.06	247.40	117.48	136.80			10,882.74
CRYSTAL SPRINGS AQUEDUCT (NEW)	1,466.01	190.99	332.03	35.20			2,024.23
CRYSTAL SPRINGS AQUEDUCT (OLD)	19,359.13	1,289.35	1,967.04	274.32			22,889.84
SAN ANDRES TRANS. LINE #1 TO COLLEGE HILL	2,221.75	69.25	204.81	64.36			2,560.17
SAN ANDRES TRANSMISSION LINE #2 TO LAKE HONDA	3,000.23	38.05	374.19	42.40			3,454.87
SAN ANDRES TRANSMISSION LINE #4 TO MERCED MANOR	3,515.52	195.25	641.07	76.51			4,428.35
SUNSET TRANSMISSION LINE	1,026.61	69.75	9.92	22.80			1,129.08
PALO ALTO PIPE LINE	4.65						4.65
METER EXPENSE	12,933.44	2,510.93	5,416.28	257.54			21,118.19
TOTAL PENINSULA DIVISION EXPENSE	$ 56,932.10	$ 4,751.12	$ 9,477.49	$ 942.64			$ 72,103.35
ALAMEDA DIVISION							
NILES REGULATING RESERVOIR	$ 4,166.32	$ 46.05	$ 286.98	$ 12.13			$ 4,511.48
ALAMEDA SUPPLY LINE	254.92	246.05	6.35	5.15			512.47
PLEASANTON TRANSMISSION LINE	30.60	3.90					34.50
METER EXPENSE	170.27	100.65		128.58			399.50
TOTAL ALAMEDA DIVISION EXPENSE	$ 4,622.11	$ 396.65	$ 293.33	$ 145.86			$ 5,457.95
TOTAL TRANSMISSION AND DISTRIBUTION EXPENSES OUTSIDE SAN FRANCISCO	$ 61,554.21	$ 5,147.77	$ 9,770.82	$ 1,088.50			$ 77,561.30

CHARGES OF NON-PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1950-1951 and 1951-1952

	1950-1951	1951-1952	INCREASE	DECREASE
Hydrants	$ 252,545.10	$ 254,196.30	$ 1,651.20	
Auxiliary Fire System	17,925.20	16,473.96		$ 1,451.24
Fire Boats	495.72	463.69		32.03
Fire Department	8,099.09	8,146.58	47.49	
Police Department	4,924.26	4,315.57		608.69
Parks	118.892.83*	122,425.25	3,532.42	
Golden Gate Park - Proper	40,600.74	38,472.17		2,128.57
Playgrounds	33,757.69*	20,250.94		13,506.75
Libraries	1,873.13	1,941.00	67.87	
Opera House & War Memorial Bldg.	2,304.54	2,116.56		187.98
" " " " " "	899.30	735.96		163.34
" " " " " "	36.00	35.06		.94
Memorial Museum-Station M-G.G.Park-Fulton & 10th Ave.	460.39	363.01		97.38
Curator-Pal.Leg.Honor-Lincoln Pk.Clement & 39th Ave.	256.56	257.98	1.42	
Academy of Sciences	48.50			48.50
Aquarium	3,498.60	3,906.36	407.76	
Steinhart Aquarium	4.85			4.85
Juvenile Court and Detention Home	349.47			349.47
Youth Guidance Center	2,094.53	3,030.25	935.72	
Adult Guidance Center	31.40	537.50	506.10	
Purchaser of Supplies	301.87	281.68		20.19
Exposition Auditorium	1,130.05	1,040.45		89.60
Retirement Board	194.05	162.78		31.27
City Planning Commission	160.28	139.98		20.30
Dept. of Public Works (Public Bldgs.)	17,813.77	48,709.33**	30,895.56	
" " " " (Street Cleaning)	10,824.49	12,174.91	1,350.42	
" " " " (Street Work & Sewers)	271.93	344.07	72.14	
" " " " (Parked Areas Pub.Sts.)	5,647.48	5,792.47	144.99	
Troughs	41.38	.70		40.68
County Jail	18,596.39	21,397.50	2,801.11	
Dept. of Electricity-General Alarm Station	199.39	164.23		35.16
Dept. of Public Health	21,906.00	22,435.23	529.23	
" " " "	1,625.59	1,572.40		53.19
Relief Home	17,187.83	17,587.60	399.77	
Hassler Health Farm	6,619.38	6,760.81	141.43	
Public Welfare Department	336.47	312.92		23.55
Registrar of Voters	81.67	67.47		14.20
Municipal Railway	8,364.21	8,823.11	458.90	
" " (Track Repairs)	18.40	12.02		6.38
Municipal Airport	3,491.70	5,251.24	1,759.54	
Disaster Council		114.27	114.27	
	$ 603,910.23	$ 630,813.31	$ 45,817.34	$ 18,914.26
	Net Increase		26,903.08	

*Parks & Playgrounds consolidated April 1952
**Increase due to Sewage Disposal Plant use.

CHARGES OF PAYING MUNICIPAL ACCOUNTS
FOR THE FISCAL YEARS 1950-1951 & 1951-1952

	1950-1951	1951-1952	DECREASE
SCHOOLS	$ 54,243.55	$ 51,686.67	$ 2,556.88
TOTALS	$ 54,243.55	$ 51,686.67	$ 2,556.88

APPENDIX
TO
REPORT OF SAN FRANCISCO WATER DEPARTMENT

TABLE	DESCRIPTION
1	San Francisco Rainfall
2	Rainfall - Watershed Stations
3	Reservoir Storage
4	Water Drawn from Hetch Hetchy and Auxiliary Sources
5	Source of Water Conveyed Across San Francisco Bay
6	Water Delivered Through Pipe Lines
7	Water Delivered at the Consumer's Meters
8	Average Daily Water Consumption Since 1865
9	Average Daily Consumption by Districts
10	Peak Day Consumption by Districts
11	Meters in Service, San Francisco District
12	Meters in Service, Suburban District
13	Official Meter Tests
14	Unit Cost for Meter Maintenance
15	Unit Cost of Meter Installation
16	Unit Cost of Service Connection
17	Street Main Taps and Service Connection Record Photostat
18	Comparative Pumping Costs
19	Record of "Bad Water" Complaints
20	Record of Water Complaints
21	Pipe Records, City Distribution System
22	Valve Records, City Distribution System
23	Contract Data Photostat

TABLE NO. 1

SAN FRANCISCO RAINFALL

(U.S. Weather Bureau Records)

Month	Season 1948-49 inches	Season 1949-50 inches	Season 1950-51 inches	Season 1951-52 inches	Normal 1951-52 inches
July	.02	.06	0	.01	.02
August	.02	.04	0	.43	.01
September	.09	0	0	.08	.45
October	.20	.08	2.72	.81	1.12
November	1.18	1.18	4.96	3.33	2.35
December	4.75	2.77	6.01	7.92	3.95
January	2.20	7.40	4.41	10.69	4.54
February	3.04	2.33	3.00	2.62	3.93
March	5.85	1.65	1.32	4.90	3.14
April	0	.87	.89	1.08	1.61
May	.93	.37	.65	0.30	.80
June	0	.03	.04	0.39	.18
Totals	18.28	16.78	24.00	32.56	22.10

1951-52 Season 147.3% of Normal.

TABLE NO. 2

RAINFALL - WATERSHED STATIONS

(Water Department Records)

Station	Season 1948-49 inches	Season 1949-50 inches	Season 1950-51 inches	Season 1951-52 inches	Normal 1951-52 inches
San Francisco	18.28	16.78	24.00	32.56	22.10
Pilarcitos	35.33	39.38	54.11	60.07	45.53
San Andres	26.43	27.79	35.33	46.09	37.52
Crystal Springs-Upper	21.88	24.26	30.64	40.04	32.30
Crystal Springs-Lower	21.90	24.36	31.61	39.16	27.84
Crystal Springs-Cottage	23.87	24.69	31.78	44.82	27.21
Lake Merced	18.91	18.06	24.51	32.75	21.60
Pleasanton	14.12	16.37	23.25	28.26	21.23
Calaveras	13.64	17.01	30.07	32.85	24.21
Sunol	13.79	16.21	23.96	29.41	20.64
Niles	13.40	14.98	20.86	25.07	19.84
Hetch Hetchy	25.84	30.03	49.54	47.67	34.34
Lake Eleanor	32.66	37.58	58.63	59.67	41.91
Moccasin	22.29	23.06	33.01	40.39	26.93

TABLE NO. 3

RESERVOIR STORAGE

(Exclusive of Hetch Hetchy Sources)

MILLION GALLONS

	1948-49		1949-50		1950-51		1951-52	
	Max. Apr.6	Min. Dec.25	Max. Apr.16	Min. Jan. 6	Max. April 7	Min. Nov.15	Max. Jan. 26	Min. Nov. 30
Calaveras	8,412	70	9,630	336	29,576	3,840	32,492	22,488
Crystal Springs	16,587	13,930	14,623	11,921	20,012	9,745	19,660	12,133
San Andres	5,905	5,041	5,886	5,561	5,174	5,248	6,293	6,064
Pilarcitos	747	519	853	506	885	570	983	497
Lake Merced	2,556	2,544	2,322	2,228	2,376	2,218	2,588	2,311
City Reservoirs	246	265	269	299	277	261	272	242
TOTALS	34,453	22,369	33,583	20,851	58,300	21,882	62,288	43,735

TABLE NO. 4

WATER DRAWN FROM HETCH HETCHY AND AUXILIARY SOURCES

MILLION GALLONS

	1948-49	1949-50	1950-51	1951-52
Hetch Hetchy Water Supply	22,464	20,785	28,236	21,672
Pleasanton Wells & Sunol Filters	4,426	1,819*	1,066	1,338
Sunset Wells	0	0	0	0
	26,880	22,604	29,302	23,010

*No water was received from Pleasanton Wells subsequent to April 1949

TABLE NO. 5

SOURCE OF WATER CONVEYED ACROSS SAN FRANCISCO BAY
YEARLY AVERAGE, MILLION GALLONS DAILY

	1948-49	1949-50	1950-51	1951-52
Pleasanton Wells and Sunol Filters	12.1	5.0	2.9	3.7
Calaveras Reservoir	16.8	23.0	14.1	18.6
Hetch Hetchy Water Supply	61.5	56.9	77.2	59.0
Totals	90.4	84.9	94.2	81.3

TABLE NO. 6

WATER DELIVERED THROUGH PIPE LINES

Water Transported into San Francisco Consumption Area (1951-52)

San Andres 54" Pipe Line	34.0 M.G.D.
College Hill 30" Supply Line	7.6 "
Baden-Merced Branch 30" Pipe Line	8.2 "
Crystal Springs 44" Pipe Line	9.1 "
Crystal Springs 60" Pipe Line	24.0 "
Sunset Supply 60" Pipe Line	--
Total San Francisco consumption area	82.9 M.G.D.

Water Transported from Crystal Springs to San Andres Reservoir:

Crystal Springs Pump Aqueduct	25.5 M.G.D.

Water Transported across San Francisco Bay:

Bay Division 60" and 66" Pipe Lines	71.8 M.G.D.
Alameda 36" Pipe Line	0.0 "
Bay Division Pipe Line No. 3	9.5 "
	81.3 "

TABLE NO. 7

WATER DELIVERED AT THE CONSUMERS METERS SAN FRANCISCO DISTRICT

	1948-49	1949-50	1950-51	1951-52
Average Active Accounts	141,460	143,388	145,302	146,844
Number on June 30	142,497	144,279	146,326	147,362
Metered Delivery (M.C.F.)				
Residential	1,309.3	1,262.5	1,318.7	3,308.2
Com'l & Ind'l	1,920.9	1,853.2	1,892.1	1,903.3
Municipal - Actual	20.7	20.3	18.6	17.3
Municipal - Comparisons	200.8	215.7	189.2	194.4
Total (M.C.F.)	3,451.7	3,351.7	3,418.6	3,423.2
Average (M.G.D.)	70.9	68.9	70.2	70.3
Consumption Rec (M.G.D.)	83.3	83.1	82.8	82.9
Difference (M.G.D.)	12.4	14.2	12.6	12.6
Ratio	14.9%	17.1%	15.2%	15.2%

SUBURBAN DISTRICT

	1948-49	1949-50	1950-51	1951-52
Average Active Accounts	722	762	778	756
Number on June 30	724	801	755	758
Metered Delivery - (M.C.F.)				
Regular Rates	1150.7	1203.4	1329.0	1395.0
Contract Rates	40.1	39.1	39.2	36.7
Free Deliveries (Rip.Contract)	23.0	25.1	27.0	29.1
Total (M.C.F.)	1213.8	1267.6	1395.2	1460.8
Average (M.G.D.)	24.9	26.0	28.6	30.0
Consumption Rec. (M.G.D.)	19.9	19.6	23.0	26.2
Difference (M.G.D.)	5.0	6.4	5.6	3.8
Ratio	25.1%	32.7%	24.3%	14.5%

TABLE NO. 8

AVERAGE DAILY CONSUMPTION SINCE 1865
CONSUMPTION IN MILLION GALLONS PER DAY

Venturi Meter Records

YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.	YEAR	M.G.D.
1865	2.4	1885	17.0	1905	34.9	1925	42.6
1870	6.0	1890	20.4	1910	35.6	1928	50.1
1875	11.7	1895	19.9	1915	42.6	1929	52.1
1880	12.7	1900	25.5	1920	36.2	1930	52.1

Note: At noon on March 3, 1930 the San Francisco Water Department acquired title to the operative properties of the Spring Valley Water Company

Year	San Francisco	Sub-urban	Total System	Max. Day	Min. Day	Max. Month	Min. Month
1930-31	49.2	3.1	52.3	66.7	41.3	57.8	47.0
1931-32	49.3	2.8	52.1	65.6	39.6	59.4	47.5
1932-33	46.4	2.7	49.1	60.4	39.9	54.3	44.6
1933-34	47.3	2.6	49.9	64.3	39.1	53.7	45.1
1934-35	48.1	2.4	50.5	65.4	41.3	58.1	46.2
1935-36	52.3	2.5	54.8	68.0	43.0	62.1	50.3
1936-37	55.1	3.4	58.5	70.7	45.7	63.8	51.8
1937-38	53.3	5.0	58.3	72.4	46.7	65.4	53.4
1938-39	56.2	6.4	62.6	84.6	48.5	77.5	54.8
1939-40	59.6	9.0	68.6	89.5	51.6	76.6	60.9
1940-41	60.7	7.3	68.0	90.0	52.0	77.9	60.6
1941-42	63.5	7.7	71.2	94.5	53.1	85.7	61.7
1942-43	69.2	8.6	77.8	106.9	60.2	92.3	68.6
1943-44	76.1	11.4	87.5	109.9	70.4	101.1	76.8
1944-45	79.0	17.9	96.9	134.9	74.7	116.5	85.2
1945-46	83.7	17.2	100.9	131.9	72.9	115.3	88.0
1946-47	83.3	18.6	101.9	135.6	76.5	117.0	86.2
1947-48	81.3	19.7	101.0	138.3	74.2	122.6	88.0
1948-49	83.3	19.9	103.2	138.3	73.3	124.4	86.4
1949-50	83.1	19.6	102.7	139.1	73.8	120.7	88.0
1950-51	82.8	23.0	105.8	147.7	77.3	126.1	88.6
1951-52	82.9	26.2	109.1	154.0	77.6	130.8	92.1

NOTE: Water Department deliveries for consumption in the major inhabited portion of the northerly 47 square miles of San Mateo County are included in the figures in column headed "San Francisco" and are not included in the figures in column headed "Suburban" in Table No. 8.

TABLE NO. 9

AVERAGE DAILY CONSUMPTION BY DISTRICTS

GALLONS

District	1951-52	1950-1951	Increase or Decrease	%Inc. or Dec.
Forest Hill	661,410	631,419	+ 29,991	+ 4.7
Stanford Heights	11,137,142	11,230,863	- 93,721	- 0.8
Sunset-Lake Honda	31,500,915	32,122,671	-621,756	- 1.9
College Hill	8,679,986	8,905,573	-225,587	- 2.5
University Mound	28,657,891	28,109,361	+548,530	+ 1.9
*Merced Manor	2,255,151	1,799,992	+455,159	+25.3
Total City	82,892,495	82,799,879	+ 92,616	+ 0.1
Suburban	26,245,325	22,999,584	+3,245,741	+14.1
Total Entire System	109,137,820	105,799,463	+3,338,357	+ 3.2

*Merced Manor consumption not measured directly: any inaccuracies would reflect in suburban and College Hill consumption.

TABLE NO. 10

PEAK DAY CONSUMPTION BY DISTRICTS

District	1951-52	1950-1951	1949-1950
Forest Hill	1,190,000	1,152,000	1,256,000
Stanford Heights	14,443,000	14,149,000	13,789,000
Sunset-Lake Honda	43,915,000	43,205,000	43,669,000
College Hill	12,428,000	11,523,000	11,481,000
University Mound	37,783,000	40,511,000	35,126,000
Merced Manor	2,644,000	2,598,000	2,914,000
Total City	106,301,000	104,945,000	102,574,000
Suburban	47,718,000	47,070,000	41,423,000
Total System	154,019,000	147,734,000	139,051,000

TABLE NO. 11

METERS IN SERVICE - SAN FRANCISCO DISTRICT
AS OF JUNE 30, 1952

CLASS OF CONSUMER	5/8"	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	Total
REVENUE AND NON-REVENUE PRODUCING AS OF JUNE 30, 1952											
REVENUE PRODUCING											
Commercial	21,188	962	2,010	2,256	3,334	11	43	230	253	1	30,288
Residential	116,943	246	893	247	13						118,342
Docks & Ship	150	6	34	53	89	1			1	2	336
Total	138,281	1,214	2,937	2,556	3,436	12	43	230	254	3	148,966
NON-REVENUE PRODUCING											
Commercial	1,114	12	18	14	27	1	1	4	5		1,196
Residential	962	2	1								965
Dock & Ship					4	1					5
Total	2,076	14	19	14	31	2	1	4	5		2,166
TOTAL METERS INSTALLED	140,357	1,228	2,956	2,570	3,467	14	44	234	259	3	151,132

Total Meters in Service as of June 30, 1952		151,132
Less: Extra Meters in 843 Batteries.(2,379 meters-843)	1,536	
Less: Extra Meters in 37 consolidations (105 meters-37)	68	
Non-Revenue Meters (Temporarily shut off)	2,166	3,770
Number of Active Accounts as of June 30, 1952		147,362

NOTE: The above meter count includes 482 Automatic Sprinklers for fire purposes.

PREVIOUS RECORDS:	1947-48	1948-49	1949-50	1950-51	1951-52
Total Meters	143,388	145,779	147,704	149,802	151,132
Increase	3,698	2,391	1,925	2,098	1,330
Idle Meters	1,685	1,858	1,916	1,920	2,166

TABLE NO. 12

METERS IN SERVICE - SUBURBAN DISTRICT

CLASS OF CONSUMERS	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	Totals
REVENUE AND NON-REVENUE PRODUCING AS OF JUNE 30, 1952										
REVENUE PRODUCING										
Under Regular Rates	514	24	48	35	268	14	63	24	3	993
" Spec. Contracts	3		1	2	27		1			34
Total	517	24	49	37	295	14	64	24	3	1,027
NON-REVENUE PRODUCING										
Under Regular Rates	19	1								20
Total	19	1								20
TOTAL METERS INSTALLED	536	25	49	37	295	14	64	24	3	1,047

Total Meters in service as of June 30, 1952	1,047
Less: Meters in excess of accounts - 269	
Less: Non-Revenue Producing Meters - 20	289
Number of Active Suburban Accounts June 30, 1952	758

COMPARISON RECORD	5/8"	3/4"	1"	1½"	2"	4"	6"	8"	10"	Totals
Record June 30, 1949										
Revenue Producing	507	24	52	37	325	13	41	10	2	1,011
Non Producing	20	5	4							29
Total	527	29	56	37	325	13	41	10	2	1,040
Record June 30, 1950										
Revenue Producing	522	26	51	34	359	15	46	18	2	1,073
Non-Producing	9	2	6		4					21
Total	531	28	57	34	363	15	46	18	2	1,094
Record June 30, 1951										
Revenue Producing	515	26	53	34	328	16	49	26	3	1,050
Non-Producing	15	3	2		3			2		25
Total	530	29	55	34	331	16	49	28	3	1,075

TABLE NO. 13

OFFICIAL METER TESTS

During Fiscal Year Ending June 30, 1952

PERCENTAGE OF VARIATION

	0%	.5%	1%	1.5%	2%	2.5%	3%	4%	5%	6%	Number Tested Total	Ratio
Fast		1	2	3	2		1	1		1	11	52.4%
Slow		3			1						4	19.0%
O.K.	6										6	28.6%
Total	6	4	2	3	3		1	1		1	21	100.0%

PREVIOUS TOTALS

Year											
	1948	2	6		2		2				12
	1949		8				1				9
	1950	4	18		8	1	5		1		37
	1951	9	3		2	1		1			16

Refunds 1951-52 Account of over-registration - $10.73
Increases " " " " under-registration- 0

TABLE NO. 14

UNIT COST FOR METER MAINTENANCE

Year	Meters in use	Total Cost	Cost per Meter	Labor Cost per Meter	Other Cost per Meter
1943-44	132,873	$44,264.92	0.33	0.220	0.110
1944-45	134,133	46,602.31	0.35	0.212	0.138
1945-46	136,549	41,576.76	0.30	1.179	0.121
1946-47	139,690	49,167.73	0.35	0.203	0.147
1947-48	143,388	65,589.71	0.46	0.260	0.200
1948-49	145,779	67,768.68	0.46	0.254	0.206
1949-50	147,704	102,547.77	0.69	0.323	0.367
1950-51	149,802	140,032.95	0.93	0.365	0.570
1951-52	151,132	107,952.22	0.71	0.323	0.391

TABLE NO. 15

UNIT COST OF METER INSTALLATION

	1948-49	1949-50	1950-51	1951-52
Meters Set	3,098	2,890	3,078	2,050
Percent $\frac{3}{4}$" and smaller	89.8	82.1	85.3	77.6
Labor	$4.16	$5.52	$3.20	$4.39
Supervision	0.22	0.30	0.13	0.26
Meter	18.73	20.31	22.83	29.76
Material	4.43	5.63	3.51	5.88
Equipment	0.16	0.59	0.17	0.27
Paving	0.70	1.32	0.47	0.83
Miscellaneous	0.01	0.05	0.15	0.01
	$28.42	$33.72	$30.46	$41.40

TABLE NO. 16

UNIT COST OF SERVICE CONNECTIONS

	1948-49	1949-50	1950-51	1951-52
Services installed	2,279	2,708	2,357	1,996
Percent $\frac{3}{4}$" installed	86.4	87.9	81.7	77.8
Labor	$16.50	$19.77	$26.79	$36.37
Supervision	0.77	0.92	1.06	1.40
Material	8.54	6.94	10.37	13.31
Equipment	1.80	2.24	3.18	4.06
Paving	6.61	5.77	10.06	10.79
Miscellaneous	0.02	0.01	0.24	0.76
	$34.24	$35.65	$51.70	$66.69

TABLE NO. 17

STREET MAIN TAPS AND SERVICE CONNECTIONS RECORD

San Francisco District June 30,1952

TAPS ON STREET MAINS

	Wharf	3/4"	1"	1½"	2"	3"	4"	6"	8"	12"	16"	TOTALS
June 30, 1951	309	158,183	4,456	3,350	2,418	745	379	348	253	15	2	170,458
ADD 1951-52	- 3	1,029	176	88	45	14	25	16	30			1,420
June 30, 1952	306	159,212	4,632	3,438	2,463	759	404	364	283	15	2	171,878

SERVICE CONNECTIONS

	Services connected to street mains, as above	171,878
ADD	"Distributors", being one or more add'l meters con. to service pipes	13,846
	TOTAL connections of record	185,724
DEDUCT	Disconnected services	36,196
	Net metered live services consisting of 148,966 active meters; less 1,604 extra meters in batteries, plus 2,166 services tempy S/O	149,528

Previous Records	1948-49	1949-50	1950-51
Active	143,921	145,788	147,882
Shut-Off	1,858	1,916	1,920
TOTALS	145,779	147,704	149,802
Less extra battery meters	1,424	1,509	1,556
NET	144,355	146,195	148,246

SERVICE INSTALLATIONS

Fiscal Year 1951-52

	Taps	Distributors	Totals
Richmond District	41	16	57
Sunset	362	35	397
No.Mkt. & West. Add.	166	67	233
So.Mkt. & Tw. Peaks	852	102	954
Waterfront	- 3		- 3
TOTALS	1,418	220	1,638
Previous Years			
1948-49	1,966	404	2,370
1949-50	2,266	339	2,605
1950-51	1,983	418	2,401

AUTOMATIC SPRINKLER INSTALLATIONS

Oct. 26, 1932 to June 30, 1952

1951-52	SIZE	1932-49	1949-50	1950-51	1951-52	Total	Installed prior to 10/26/32	GRAND TOTAL
4	4-Inch	17	2	2	4	25		
13	6-Inch	105	11	13	13	142		
21	8-Inch	132	12	25	21	190		
0	12-Inch	7	1	0	0	8		
38	TOTALS	261	26	40	38	365	163	528

TABLE NO. 18

COMPARATIVE PUMPING COSTS

SAN ANDRES PUMP	1948-49	1949-50	1950-51	1951-52
Water Pumped, Gallons	13,701,830,000	12,644,870,000	12,669,413,000	9,317,043,000
Electric Power, KWH	13,420,800	12,780,800	11,264,000	9,536,000
Power Cost	$ 114,103.66	$ 94,515.11	$ 88,923.95	$ 83,289,64
Labor Cost	16,742.50	16,483.51	18,034.70	22,259.49
Miscellaneous	8,861.33	7,472.33	2,705.04	2,399.66
Totals	$ 139,707.49	$ 118,470.95	$ 109,663,69	$ 107,948.79
Cost per Million Gallons	$ 10.20	$ 9.37	$ 10.28	$ 11.59
" " " " per foot of lift	0.0449	$ 0.0416	$ 0.0417	$ 0.0523

CENTRAL PUMP				
Water Pumped, Gallons	3,861,370,000	3,966,376,000	4,052,250,000	4,040,430,000
Gas burned, Cu. Ft.	139,312,000	153,457,000	172,978,000	170,964,000
Oil burned, Gallons	160,020	104,496	6,182	8,430
Electric Power, KWH	6,000	60,000	12,000	31,200
Fuel & Power Cost	$ 57,807.07	$ 44,105.59	$ 48,382.66	$ 55,325.34
Labor Cost	$ 49,485.01	$ 51,350.76	$ 52,625.62	$ 62,039.80
Miscellaneous	$ 1,410.79	$ 2,099.10	$ 988.20	$ 463.00
Totals	$ 108,702.87	$ 97,555.45	$ 101,996.48	$ 117,828.14
Cost per Million Gallons	$ 28.15	$ 24.60	$ 25.17	$ 29.16

TABLE NO. 19

RECORD OF BAD WATER COMPLAINTS

Comparisons of complaints received during Fiscal Years 1948-49 to 1951-52 with reference to the districts involved

	1948-49	1949-50	1950-51	1951-52
University Mound	50	72	51	49
Sunset Reservoir	-	205	146	173
College Hill	106	27	53	27
Lake Honda Reser. *	98	-	-	-
Lake Honda Ocean View*	29	-	-	-
Sunset Lombard	7	41	1	0
Forest Hill	10	7	4	7
Stanford Heights	89	106	74	73
Presidio Heights	21	16	7	23
Merced Manor	6	20	9	26
Totals	416	494	345	378

*Now Sunset Reservoir

TABLE NO. 20

RECORD OF NO WATER COMPLAINTS

Fiscal Years 1948-49 to 1951-52

(a) Those for which the Department was responsible:				
Choked Pipes	75	97	90	37
Service or main broken	25	34	27	34
Service or main too small	125	126	134	494
Elevation too high	81	70	69	3
S/O at main or meter	19	15	12	8
District tempy S/D	0	1	0	0
Totals	325	343	332	576
Percentage	33.0%	30.3%	33.1%	45.2%
(b) Those for which the Consumers were responsible:				
House Valves closed	89	89	92	61
House Pipe too small	242	367	357	304
False Reports	183	191	186	242
Valves out of order	101	114	91	76
House Pipe broken	6	1	6	9
Bldg. too high	1	0	0	0
Overloaded service	38	27	36	6
Totals	660	789	768	698
Percentage	67.0%	69.7%	66.9%	54.8%
Total "No Water"	985	1,132	1,100	1,274
Large Bill Complaints	12,041	10,355	9,555	9,265

TABLE NO. 21

PIPE RECORDS
CITY DISTRIBUTION SYSTEM

Wrought Iron and Steel Pipe

Size	Total Pipe in Ground July 1, 1951	Pipe Laid 1951-52	Removed or Abandoned 1951-52	Total Pipe in Ground June 30,1952
3/4"	12,203'	0'	130'	12,073
1"	40,048	0	470	39,578
1¼"	3,928	0	0	3,928
1½"	171,916	527	984	171,459
2"	285,737	362	3890	282,209
3"	26,614	1,408	0	28,022
4"	3,979	7	0	3,986
5"	804	0	0	804
6"	3,809	0	0	3,809
12"	6,555	0	0	6,555
13"	456	0	0	456
16"	25,587	0	0	25,587
20"	64,730	0	0	64,730
22"	25,309	0	0	25,309
23½"	9,087	0	0	9,087
24"	35,243	0	0	35,243
30"	27,294	0	0	27,294
33"	2,409	0	0	2,409
36"	40,892	8,301	815	48,378
37½"	8,896	0	0	8,896
44"	22,974	0	0	22,974
48"	11,504	0	0	11,504
60"	26,216	0	0	26,216
Total W.I.&S	856,190'	10,605'	6,289'	860,506'
		Transite Pipe		
6"	6,833'	3,674'	0'	10,507'
8"	11,949	6,033	0	17,982
Total Transite	18,782'	9,707'	0	28,489'

TABLE 21(Cont.)

CAST IRON PIPE

Size	Total Pipe in Ground July 1, 1951	Pipe Laid 1951-52	Removed or Abandoned 1951-52	Total Pipe in Ground June 30,1952
2"	23,094'	985'	1,951'	22,128'
3	60,573	64	380	60,257
4	497,519	2,332	1,291	498,560
6	1,739,739	8,112	2,195	1,745,656
8	1,519,848	6,129	1,821	1,524,156
10	6,348	0	0	6,348
12	450,589	12,392	624	462,357
16	278,371	11,571	0	289,942
20	22,642	0	0	22,642
22	19,058	0	0	19,058
24	52,173	0	0	52,173
30	6,108	0	0	6,108
Total C.I.	4,676,062'	41,585'	8,262'	4,709,385'
Total All	5,551,034'	61,897'	14,551'	5,598,380'
Miles	1,051.332	11.723	2,756	1,060.300

TABLE 22

VALVE RECORDS

Gates		Service	Gates	Blowoffs		Air Valves		Check Valves	
2"	125	3"	438	3/4"	9	3/4"	52	1½"	7
3"	142	4"	438	1"	45	1"	57	2"	8
4"	1201	6"	282	1½"	282	1½"	362	3"	1
6"	3857	8"	233	2"	856	2"	253	4"	10
8"	3585	12"	11	3"	202	3"	5	6"	25
10"	6			4"	313	4"	1	8"	29
12"	817			6"	165	6"	13	12"	3
16"	431			8"	121	8"	248	16"	4
20"	23			12"	20				
22"	20			16"	2			Stop Cocks	
24"	58								
30'	22							5/8"	18
36"	20							3/4"	139
37½"	2							1"	202
42"	3							1½"	973
48"	1							2"	2716

TABLE NO. 23

CONTRACT DATA 1951-52

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Completion 6-30-52	Bid Price	Contract Cost to 6-30-52
524AC	Bay Division Pipeline #3	Peninsula	10	United Concrete Pipe Corporation	11-23-49	5-26-52	100	$4,246,464.50	$4,239,272.35
524B	Bay Division Pipeline #3	Peninsula	10	Artukovich Bros.& Steve P.Rados	11-23-49	9-27-51	100	4,097,546.00	4,076,373.43
536	Sutro Reservoir	City Dist.	10	Granite Construction Co.	12-18-50	2-29-52	100	1,019,935.00	996,037.65
546	Bay Crossing PipeLines #1 & #2 Cross Connections Newark & Redwood City	Peninsula & Alameda	5	E. T. Haas Co.	2-4-52	--	-0-	19,700.00	--
550R	Lay 12" C.I.Main in Bayshore Industrial Dev.	City Dist.	4	Fred T. Fairey	5-28-51	7-2-51	100	9,095.90	9,035.00
554	San Andres Outlet No.1 Chlorination Plant	Peninsula	4	Wenrick & Assoc.	10-2-50	11-27-51	100	21,609.00	24,549.21
556	Lay 36" St.Main in Division,10th & Bryant	City Dist.	3	Arthur Wallgren	11-27-50	7-13-51	100	42,385.00	39,591.85
564	Lay 6"& 12" C.I.Mains in Midtown Ter.& Portola Dr.	City Dist.	6	H. T. Treacy	1-22-51	10-15-51	100	21,811.00	22,525.25
565	Lay 6"& 8" C.I.Mains in Bright & Shields Sts.	City Dist.	4	F. T. Fairey	1-29-51	9-25-51	100	5,807.80	5,510.14
566	Lay 6"& 8" C.I.Mains in Lawton Heights Subdivision	City Dist.	3	F. T. Fairey	1-22-51	--	-0-	9,405.10	--
567	Lay 6" C.I.Mains in Harkness Ave.bet.Alder & Sparta Sts.	City Dist.	3	H. T. Treacy	2-26-51	5-1-52	100	3,346.70	3,422.47
571	Lay 8"& 12" C.I.Mains in 34th Ave.bet.Balboa & Clement Sts.	City Dist.	3	F. T. Fairey	7-30-51	9-12-51	100	19,860.30	19,647.20
574	Drilling & Grouting in W.Abutment of Calaveras Dam	Alameda	2	L. L. Jeffries	11-5-51	4-15-52	100	53,515.00	58,421.60
575	Lay 8"C.I.Main in Bay Shore Blvd.bet.Industrial & Augusta Sts.	City Dist.	3	E. J. Treacy	5-21-51	7-13-51	100	7,797.40	7,007.57
576	Repave Street & Sidewalk openings, 1951-52	City Dist.	1	Pac.Pavement Co.	5-28-51	6-30-52	100	99,675.00	70,401.10
577	Lay 6"& 8" Transite Mains in Olmstead, Bowdoin & Colby Sts.	City Dist.	4	Fred T. Fairey	5-28-51	10-1-51	100	8,975.00	8,633.51
579	Lay 36" Steel Sutro Reservoir Supply Main	City Dist.	3	M & K Corp.	7-9--51	2-27-52	100	243,163.00	245,755.29
580	Lay 12" C.I.Main in Corbett Ave., So. of Romain	City Dist.	3	S.F.W.D.	7-9-51	8-6-51	100	3,331.65	2,464.73

TABLE NO. 23 (Continued)

CONTRACT DATA 1951-52

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Completion 6-30-52	Bid Price	Contract Cost to 6-30-52
581	Surfacing of Roadways at Millbrae Headquarters	Peninsula	4	Ben Blair	6-25-51	8-28-51	100	$ 3,610.30	$ 3,967.70
582	Lay 6" C.I.Mains in Goettingen St.,Wilde to Campbell & in Lansing St., W. of 1st Street	City Dist.	3	S.F.W.D.	7-30-51	10-30-51	100	6,691.20	5,827.62
583	Construction of College Hill Chlorinating Sta.	City Dist.	3	R. Madsen	8--13-51	12-18-51	100	5,600.00	6,611.82
584	Lay 8" Transite Main in Cora & Allan Sts.So.of Sunnydale	City Dist.	3	F. T. Fairey	7-23-51	8-8-51	100	5,378.80	5,362.63
585	Lay 8" C.I. Main in Masonic Ave.,N.of O'Farrell St.	City Dist.	4	E. J. Treacy	8-13-51	9-13-51	100	3,122.40	2,534.87
587	Lay 12" C.I.Main in Mason St.N.& S.of Broadway	City Dist.	4	E. J. Treacy	8-13-51	9-28-51	100	3,583.90	3,149.38
588	Construction of Lake Merced Pumping Sta.	City Dist.	6	Rothschild, Raffin & Weirick & Pacific Bridge Co. (Joint)	12-10-51	--	2	$1,064,570.00	21,290.00
589	Lay 8"& 12" C.I.Mains in 3rd,Marin,Michigan & Army Sts.	City Dist.	3	Fred T. Fairey	9-11-51	2-14-52	100	15,725.70	15,143.76
590	Walnut Crop - Sunol 1951	Agriculture	3	John Helzer	9-11-51	11-12-51	100	11,000.00	8,958.43
591	Lay 8" Transite & 12" C.I. Mains in Stonestown Subd.	City Dist.	4	Fred T. Fairey	10 -1-51	1-22-52	100	48,652.40	48,909.06
592	Lay 6" Transite Mains in Dartmouth & Hamilton Sts.	City Dist.	5	Fred T. Fairey	12-26-51	--	47	10,269.05	4,800.00
593	Lay 12"& 16" C.I.Mains in Sunset Dist.Taraval & Montalvo to Moraga & 16th Avenue	City Dist.	6	Barrett & Hilp	10-29-51	2-14-52	100	86,299.60	77,272.21
594	Lay 6" C.I.Mains in Broadway Mason to Taylor & from Larkin to Leavenworth	City Dist.	3	S.F.W.D.	10-29-51	3-5-52	100	6,068.70	4,899.38
596	Removing 30" C.I.Pipe from Locksley, Lawton to Moraga	City Dist.	6	Eaton & Smith	11-13-51	1-10-52	100	3,246.00	3,030.47
597	Lay 16"C.I.Mains in 15th & 17th Aves.,Portola to Taraval & in Merced-Kensington to Laguna Honda Blvd.	City Dist.	5	Michael Murphy, Jr.	12-26-51	4-23-52	100	69,529.00	72,302.41
598	Lay 4" C.I. & 6" Transite Mains in Monterey Blvd.-San Aleso to Ridgewood	City Dist.	4	Michael Murphy, Jr.	11-5-51	6-5-52	100	14,590.50	15,508.61
599	Lay 6" C.I.Mains, Molimo Dr. & in Foerster St.	City Dist.	4	H. T. Treacy	12-3-51	--	67	8,181.00	5,500.00

TABLE NO. 23 (Continued)

CONTRACT DATA 1951-52

Contract No.	Title of Contract	Division	No. of Bidders	Contractor	Date of Award	Date of Completion	% Completion 6-30-52	Bid Price	Contract Cost to 6-30-52
600	Lay 6" & 12" C.I.Mains in Midtown Terrace #2	City Dist.	6	Harold T. Treacy	1-21-52	--	40	$ 13,514.10	$ 5,400.00
601	Lay 8" C.I.Main in Harrison St.N.of 20th St.2	City Dist.	1	S.F.W.D.	1-7-52	2-18-52	100	2,974.25	2,094.39
602R	Lay 30"Steel Sutro Main from 7th & Clarendon Aves to Stanyan & Frederick Sts.	City Dist.	4	M & K Corp., and Assoc.PipeLine Weld.	4-14-52	--	-0-	238,944.00	--
603	Lay 16"C.I.Mains in Sadowa, Capital to Plymouth & in Holloway Ave.,Plymouth to Harold Ave.	City Dist.	7	Assodiated Pipe Line Welders	3-3-52	5-9-52	100	31,368.40	30,579.98
605	Lay 8" C.I.Main in Private Property Ea. of 23rd St.q	City Dist.	3	S.F.W.D	2-25-52	4-11-52	100	7,270.50	6,289.73
606	Re-Lay 6"& 8" C.I.Mains in 13th St.Mission to Harrison	City Dist.	4	S.F.W.D.	3-10-52	--	-0-	15,566.50	--
608	Lay 8" C.I.Main, California St.,Stockton St.to Grant Av.	City Dist	3	S.F.W.D.	4-21-52	--	-0-	3,301.95	--
609	Lay 6" C.I.Mains in Broadway St.,Larkin to Cyrus & in Filbert St.from Octavia to Gough	City Dist.	4	E. J. Treacy	5-5-52	--	92	8,191.00	7,535.00
612	Controlling & Destroying Weeds in San Mateo Co.	Peninsula	2	Alan F. Howe	4-14-52	6-2-52	100	3,407.25	3,362.65
613	Fluoride Treatment Plants at Alemany & at San Andres Outlet No. 2	City Dist. Peninsula	4	Roy Madsen	4-28-52	--	65	20,722.50	13,470.00
615	Lay 16" C.I.Main from Harold & Bruce Aves to Rolph & Athens	City Dist.	6	F. T. Fairey	5-12-52	--	18	90,178.00	16,230.00
616	Lay 20"& 24" Steel Main Stanyan & Frederick	City Dist.	5	M & K Corp. and Assoc.P.L.Welders	6-23-52	--	-0-	285,261.00	--
620	Lay 6" & 8" C.I.Mains in Sargent St. bet. Vernon & Victoria Sts.	City Dist.	5	Fred T. Fairey	5-26-52	--	80	5,393.15	4,315.00
621	Lay 6" C.I.Main in Campbell Ave.,bet. Delta & Elliott Sts.	City Dist.	3	Bernal Constr.	6-2-52	--	67	3,654.55	2,450.00

ORGANIZATION AND PERSONNEL

G. W. Pracy . . . . . General Manager and Chief Engineer

WATER PRODUCTION AND ENGINEERING

T. W. Espy . . . Senior Engineer in Charge of Water Production
L. A. McAtee . . . . . .Senior Engineer in Charge of Design
C. A. Lauenstein . Construction Engineer - Special Construction
W. A. Yount . . . . . Superintendent Alameda Division
W. R. Anderson . . . Assistant Superintendent Alameda Division
G. J. Davis. . . . . Superintendent Peninsula Division
J. E. O'Marie . . Assistant Superintendent Peninsula Division
G. E. Fanning . . . . . Photographer

CITY DISTRIBUTION

O. G. Goldman . . . . . Superintendent City Distribution
S. M. Tatarian . . . Assistant Superintendent City Distribution
A. G. Zecher . . . . . General Foreman City Pipe System
J. P. Curto . . . . . General Foreman Services and Meters
A. C. Doidge . . . . . Head Clerk
R. W. Tullis . . . . . Superintendent of Machine Shop
P. L. Sebanc . . . . . Foreman Meter Shop

WATER PURIFICATION

H. C. Medbery . . . . . Engineer of Water Purification
H. W. Tracy . . . . . Assistant Engineer Water Purification
H. L. Fruitman . . . . . Senior Water Chemist

WATER SALES

*Joseph Conway . . . . . Manager, Water Sales Division
J. W. Cooper . . . . . Assistant Manager, Water Sales Division
James Hennessy . . . . . Chief Clerk Collections
Kearce Fahy . . . . . Chief Clerk Consumers' Accounts
E. R. Benninger . . . . . Head Clerk Water Sales Division
C. C. Clark . . . . . Consumers' Complaint Investigator
Francis Lennon . . . . . Head Clerk Adjusting Division
J. P. Manning . . . . . Head Clerk Consumers' Accounts
Chas. Hynes . . . . . Head Clerk Service and Supply
J. E. Huntoon . . . . . Head Clerk Closing Bills
J. A. Ragsdale . . . . . .Head Clerk Docks and Shipping
Andrew Ute . . . . . Chief Water Service Inspector

LANDS AND AGRICULTURE

J. G. Brucato . . . . . Superintendent Agricultural Division
Fred Steiner . . Assistant Superintendent Agricultural Division

ACCOUNTS

E. J. White . . . . . Senior Accountant
Z. H. Taylor . . . . . Accountant
H. M. Kinsey . . . . . Cashier

*Deceased November 1, 1951. J. W. Cooper, Acting Manager.

RETIRED 1951 - 52

During the past fiscal year, the following employees were retired from service, and recognition is given to their faithful service in the organization.

Edith Allen	Gen. Clerk-Stenographer	21 years service
George Cathrell	Laborer	20 years service
John McAdoo	Plumber	21 years service
Henry Melone	Supt., Agriculture	5 years service
Lawrence Murphy	Serviceman	21 years service
Johan Rasmussen	Farmer Sub-Foreman	6 years

IN MEMORIAM

Name	Died	Length of Service
Carmelo Bologna	January 17, 1952	5 years
Eugene J. Bruno	September 9, 1951	21 years
Joseph Conway	November 1, 1951	21 years
William H. Mitchell	May 14, 1952	10 years
Alf. M. Peterson	December 27, 1951	9 years
Ethel Phelan	February 25, 1952	4 years
Michael Sweeney	May 21, 1952	10 years

SUNOL WALNUT ORCHARD UNDER IRRIGATION